



CLARK... Ray prospects

## Plessey set for 28% profit boost

by Philip Hunter  
PLESSEY's Sir John Clark looks set to report a healthy 28% increase in pre-tax profit from £11.1 million to about £14.5 million for its year ended March 1983. And with the company's US presence in the market for main telephone exchanges now firmly established and expected to become profitable by mid-1984, immediate prospects are rosy.

Plessey has also secured a lead role in development of British Telecom's System X, with the prospect of export sales to Europe, and possibly later to the US after adaptation. Plessey shares the development with GEC after Standard Telephone Company dropped out.

Plessey's latest move in reorganising its North American strategy is to sell off its Canadian subsidiary, Plessey Canada. A deal is being negotiated with TIB Communications Canada, and Plessey expects to sell the subsidiary for about £6.5 million, making a fair profit.

Last autumn, Plessey took over the part of US company Stromberg Carlson that makes main exchanges, for £33 million. Plessey did not bid for the part of Stromberg that makes private automatic branch exchanges (PABX), since it has its own IDX product.

Stromberg will certainly report a loss for the year ended March 1983. But it expects to benefit from increased demand for main exchanges following liberalisation of the US telecommunications market, and run into profit by the first quarter of this financial year.

Plessey says that the sale of its Canadian company follows naturally from the acquisition of Stromberg. With the IDX equipment eventually being made and distributed by Stromberg, there will be no room for the Canadian products in the market.

Another important US move, coming close on the heels of the Stromberg takeover, was the setting up of a joint £1 million company to develop scientific communications with the \$300 million US company Scientific Atlanta (SA). Plessey is the majority shareholder in the new company, and also has an option to acquire up to 30% of SA during the next few years.

## Poll bid to lift VAT on micros

by John Kavanagh  
THE computer industry has its own eccentric party for the General Election - but with serious undertones. Freelance programmer Peter Dick has formed the Basic Party, with three election platforms: The abolition of VAT on microcomputers, the removal of the 70mph limit on motorways and "pussy passes" to enable pensioners to buy cat food at cut rates.

"I'm not saying my stand is without humour, but I do believe these are serious issues," Dick said. He is standing in his home constituency of Hammersmith, West London.

The Basic Party manifesto argues that microcomputers are educational tools and, like books,

should be free of VAT to encourage wide use. The removal of VAT would boost sales and thus create jobs, Dick argues.

The manifesto adds: "Clearly an increase in government provision for computer training is vital to the prosperity of the nation." It calls for grants for people who want to attend computing seminars (Dick was also a founder of a firm which runs seminars).

The 70mph limit should be removed because it turns ordinary citizens into criminals and brings the good name of the police into disrepute, the manifesto says.

It adds that pussy passes should be introduced because pensioners are unlikely to benefit from the removal of VAT or the abolition of the speed limit.



DICK... Standing for no VAT on micros - and pussy passes for pensioners.

There are eight candidates standing in Hammersmith, including a Liberal and an SDP-Liberal. "I wouldn't say it's a foregone conclusion that I'll win," Dick said.

"My aim is to make the point about computer education, not to win an election."

Sinclair and Osborne microcomputer users can get an early feel for the likely balance of power in the next Parliament from a software package developed by one of Margaret Thatcher's advisers, Christopher Monkton. The system, called Swingometer, works on opinion poll findings or

early election results to show a number of seats each party is likely to win. It was written for Conservatives to show the effect recent constituency boundary changes. And it said the SDP would not be a serious threat. The £10 package is available from Ixex portable Software.

## Xerox teams up to cut cost of Ethernet access

by Robert Parry  
ETHERNET local network pioneer Xerox has teamed up with micro software company VisiCorp and interface supplier 3Com to cut the cost of access to Xerox's Ethernet network services. The three companies announced a co-operative project at the US National Computer Conference in Anaheim last week.

Xerox will develop applications to sit on top of VisiCorp's VisiOn product running on the

IBM PC, making Ethernet services accessible to PC users. VisiCorp will market these network applications worldwide to run with VisiOn on the IBM PC, while 3Com will provide the direct hardware and protocol software connection to the network.

"Xerox is in the business of giving office automation tools and services," says vice-president, office systems division, John Shoch. "Now we are integrating

other people's personal computers with our offerings. It depends on the software that sits on top of them. We were impressed by VisiOn, particularly for integrated multiple systems."

VisiOn, a package integrating most common office computing functions into a single unit, was modelled on Xerox's own Star workstation - though with scaled down expectations, adds Shoch. Xerox will work with VisiCorp to implement VisiOn on

a Xerox personal computer. For VisiCorp's part, the kit with Xerox and Ethernet network lower-cost entry price for VisiOn systems, as with the network essential hard disc storage can be shared among users by virtual discing.

It went the Ethernet way because "whatever individual networks there are, there will be Ethernet as an industry standard," says chairman De Fylstra.

## Magnuson gets users' votes

by George Black  
ALL but one plug compatible manufacturers were rated above IBM for the second year running in a user satisfaction survey.

The user poll, by Datapro Research Corp of New Jersey, gave first place to Magnuson Computers, which filed for bankruptcy under US Chapter 11 law in March.

Second came Digital Equipment - up from fourth in 1982, and third again was Amdehl. Wooden spoon prize was taken by Control Data, relieving Honeywell of the bottom position after three years.

Following Amdehl in the league table were: National Advanced Systems, the National Semiconductor subsidiary (fourth); IBM (fifth); IPL (sixth); NCR (seventh); Burroughs (eighth);

Sperry (ninth) and Honeywell (tenth).

A notable feature of the survey was the strong degree of "brand loyalty" still prevailing, despite aggressive marketing by all the vendors involved. Four out of five users said they would recommend their system to others. And few IBM users want to defect to other makers.

Of IBM 370 users - a system which achieved no better than middling popularity - 43% intend to exchange their machines for a more powerful IBM replacement in the next year.

And of 8100 users - the least satisfactory of IBM's range, according to those who responded - only 7% said they would switch to a non-IBM make.

Among IBM's systems the best received was the 3080 series,

which came fifth behind Magnuson's M80s, DEC's Decsystem-20, Amdehl's 470 and DEC's Decsystem-10.

The IBM 360s, 370s, 3031, 3032, 3033 and 4341 came in the middle of the field. Magnuson M80 series users praised the machines' ease of operation, programming and reliability.

CDC users complained of trouble both in programming and in operating their machines - yet even they did not on the whole intend to abandon their manufacturers for another brand.

Part of the explanation in this case could be CDC's good record in delivering software, which was reported to equal IPL and Magnuson.

Results of the annual survey were based on 3,800 replies to 15,000 questionnaires.

## Burroughs to double size of Scottish plant

by Kevin Cahill  
BURROUGHS, the US-based computer manufacturer, is to spend £3 million to double the size of its plant at Livingston, in Scotland. The plant, currently 100,000 sq feet and used mainly to manufacture advanced document processing systems, will be increased to about 200,000 sq feet and will be ready for use by the end of 1984.

According to a Burroughs

spokesman the enlarged plant will be used to build an extended version of the company's Series S document processors.

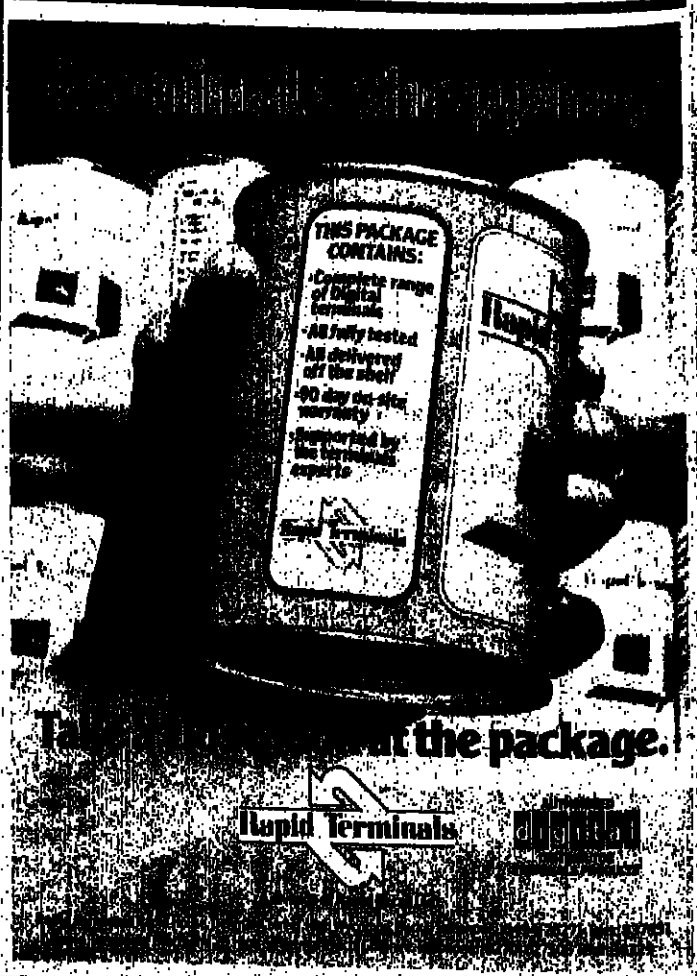
The new production is expected to increase the number of jobs at the plant by about 200.

The Burroughs announcement came at the end of the annual Burroughs computer users conference, which included a revelation by the customer service engineering manager, Peter Blome, that the com-

pany had reduced the response time to a mainframe customer call to 1.9 hours.

Blome also said that response time to mini system customer calls was down to 2.8 hours and he attributed the improvement to the opening of the company's new resource centre.

Blome reckoned that Burroughs was now responding to 80% of all customer enquiries within four hours.



Put Mercury money where mouth is

## Fujitsu holds on to its lead

FUJITSU has consolidated its lead over IBM Japan as that country's No 1 computer company with a record 19% increase in computer shipments for the year ended March 31. Combined with an increase of 25% in sales of electronic components Fujitsu turned in annual profits of 63bn yen, a 25.9% increase on 1982. Sales overall rose 20.2% to 806.8bn yen.

Fujitsu is forecasting growth in sales of over 11.6% for the current year.

## UK banks agree

THE UK should have a trial point-of-sale electronic funds transfer system in operation by 1986. The 12 banks involved in the scheme have reached agreement on a £50 million project, which is aimed at reducing the cost of handling the 2.5 billion cheques written each year in the UK.

## Honeywell scores

HONEYWELL has scored a victory over ICL by winning a contract to replace Loughborough University's ageing 1904S. Loughborough's 6,000 students will be able to use the new £1.5 million dual DPS8/70 Multics system at the start of the next academic year.

## Second source

LOGICA and Plessey have got together to put the Xenix operating system on Plessey's System 68 micro. Microsoft's Unix-derived software has been implemented on the Motorola-68000 chip machine. Logica is now second source for Xenix in Europe and will support UK installations.

## Users act on DECsystem upgrade cuts

by John Kavanagh  
DIGITAL EQUIPMENT users are planning a quick response to the big US firm's axing of work on an upgrade processor for its DECsystem-10 and DECsystem-20 mainframes. The development project has been in trouble for at least 18 months and DEC is now suggesting users upgrade by linking existing processor models together.

DEC customers in the UK were told of the company's decision in personal letters from UK manager Darryl Barbe last week. The news

was also announced to an international meeting of the users association, Decus, in the US.

The company said it would now concentrate its top-end processor development on the 32-bit Vax range - but it would continue to build and support the existing 36-bit DECsystem-10 and 20 machines. It would also speed up the integration of the DECsystem operating systems into its network architecture, DCA.

Upgrades would be possible by linking DECsystem processors through the Interconnect facility,

launched at the start of the year, which can connect four processors. Further enhancements would be possible by linking DECsystems through DCA to Vax machines for load-sharing. DEC is now working on these Vax links.

Ian Griffiths, computing manager at Trent Polytechnic and chairman of the UK DECsystems user group in Decus, said he was arranging meetings with top DEC people and working on a response.

"We hope to put pressure on DEC to re-engineer the existing models to make them faster," he

said. "We also hope to set up an international user task force to get views on what DEC should do." But although Griffiths and other users described the news as disappointing they were not angry at the company. Griffiths said the proposed upgrade path was "satisfactory but not perfect". He said the DECsystems' operating systems were "superb" and hoped DEC would build the best features into the Vax systems. He added that the DECsystem user group had an excellent relationship with DEC.



The Plessey Board with Sir John Clark claim "none of it is sticking to us - unfortunately."

## Defence contractors face 50% profit cut after poll

by George Black  
SYSTEMS contractors to the Defence Ministry could face cuts of up to 50% in their profits from this autumn.

The incoming government will be advised to take this drastic step after a Commons committee accused defence suppliers of pocketing a £75 million windfall.

The Public Accounts Committee said in a review that it was extremely concerned that the rate of inflation was still being taken as 15% in contracts, even though the current rate is down to 5%. The £75 million is said to be a windfall above the margin originally agreed. And the review says it does not result from improved efficiency.

But computer companies deny they are receivers of this unintended bonus.

"None of it is sticking to us - unfortunately," said Plessey chief executive Sir John Clark.

And Frank Chorley, head of Plessey's defence subsidiary, said: "The Treasury has an unrealistic view of what is a reasonable return. We get around 20% - is that so exciting?"

Plessey Electronic Systems last year made £29 million profit on a turnover of £326 million. Chorley attributed this to expansion in sales to NATO and the third world - the domestic share was down, he said.

Marconi defence managing director Arthur Walsh denied that

## Japan's software hits West

by George Black  
THE first of a potential flood of Japanese software is set to make its debut in the West.

Two top US software houses, Management Science America and Panosaphic, are planning to sell Japanese packages in US and European markets. Both companies are in discussions with Tokyo marketing company Asishuto, which will convert by 1984 a range of Japanese scientific, engineering and systems programs for the English speaking world.

Most UK software companies hold to the theory that Britain will retain a lead in software as the Japanese talents in the field are merely imitative. Evidence for Japanese programming skills is slight, although Sord's Pips environment has won fans, and Matsushita claims its AFL language will make an important contribution to the IBM-PC.

But Asishuto president Bill Totten, a Californian who has lived in Japan since 1962, says the Japanese have been developing applications programs for at least five years to use in shipbuilding and engineering plants.

"They've gone abroad looking for solutions to their automation problems and found little available. They bought what they could find, even when no support was offered.

And they've been quietly devising their own answers."

Asishuto has hired three new managers to scout the new computing subsidiaries of Japanese industrial firms and acquire products, mainly in Assembler, Cobol and Fortran, for IBM and plug-compatible mainframes.

While Panosaphic wants to acquire systems programs, MSA is keen to find applications to hitch to its new manufacturing system just launched in the UK. Developed out of a suite owned by Xerox's Arista, which MSA took over last year, this is likely to have a big impact in the crowded manufacturing systems market.

Leader Comment, page 13.



TOTTEN... "Japanese quietly devising their own answers."

### VAX Users:

The 9751 offers some unbeatable features:

- 1 414 megabytes Winchester type storage
- 2 average access time 18 ms/secs
- 3 no head switch delay
- 4 single compact unit that accommodates up to 1.6 gigabytes of storage

System Industries, the world's largest supplier of DEC\* compatible storage systems, has its 9751 high performance disc drive available for immediate delivery.

\*DEC and VAX are registered trademarks of Digital Equipment Corporation

The 9751 disc system is available for VAX 780 SBI, VAX 750 CMI, and VAX 730 Unibus... immediately.

**System Industries**  
Woking (04862) 507

System Industries (Europe)  
System House, Guildford Road,  
Woking, Surrey GU22 7QJ



# UK firm's bid vetoed in France

by Jack Gee  
FRENCH computer firms have jumped up against a British company chosen by the State-controlled electricity utility to prevent it winning a five million franc (£800,000) trial order for a portable billing device. It could have blossomed into 330 million francs (£28 million) worth of orders.

Immediate Business Systems of Milton Keynes had been chosen by Electricite de France (EDF) to develop a small computer with a memory that could contain each customer's account and print a bill as soon as a meter reading is taken. EDF would thereby speed up collection of bills by several days, a considerable advantage for a corporation with receipts of 12 billion francs (£1 billion) a day.

Immediate Business Systems' device won the French Generating Board's favour because it had already undergone one year of trials in Britain, and the firm seemed likely to get an order for 3,500 machines.

But Communist trade union leaders and senior executives at EDF launched a campaign against the British "invasion" and got left-wing members of France's National Assembly to put questions to Jean-Pierre Chevènement, Minister for Technology and Research, before he was dropped in a government reshuffle in March.

Chevènement wrote to EDF urging it to "undertake a new study of the instant billing project, so that use can be made of French industry's know-how in this field."

Although four French firms submitted tenders one million francs (£80,000) cheaper than Immediate Business Systems, EDF preferred the British system. The utility was confident that the government would respect its choice, following a recent ruling that civil service departments must not direct public corporations on where to buy their equipment.

But when Chevènement's replacement as Industry Minister, Laurent Fabius, presented recently France's top awards for high technology — the so-called "Electronic Oscars" — prize-winner Philippe Danon, managing director of Centratel, seized a microphone and shouted: "We have produced a competitive prototype, Monsieur le Ministre, give us the contract."

Danon later announced that Fabius had told him he had secretly vetoed the British contract.

At the British Embassy in Paris an official said: "As far as we know, the contract is by no means lost. The affair is still being studied here and in London."

EDF has not yet formally told Immediate Business Systems whether or not it plans to go ahead with the pilot project. But it has informed the firm that its entire budget is now being reviewed in the context of France's austerity programme, and this will affect plans for instant billing.



HARVEY... "It is mainframe software — and not a small package."

## Micros can now take on mainframe financial software

by Robert Parry  
MAINFRAME financial software has made it down to a micro in its entirety, and the machine, a Wicat 150, has taken over as the development engine for the software. Planmaster Systems of Beaconsfield has put its Planmaster suite on to the Wicat without omission or partitioning on to separate discs, and will sell the complete six-user hardware/software package for £30,000 — about the same price as the present IBM mainframe software alone.

The software grew out of internal requirements at Wiggins Teape in the late 1960s, and was initially available as a time-sharing service on a Sigma 9 computer. Last year it became available for IBM systems running VM/CMS. It is designed to provide an effective tool for financial planning and budgeting in large companies.

"It is mainframe software — and not a small package," says Planmaster's managing director

## Supercomputer stakes are joined by NEC

by Kevin Cahill  
A FIFTH competitor, NEC of Japan, has entered the supercomputer stakes with a 1.3 gigaflop machine, due in 1985.

"Supercomputer" is the name traditionally given to the large specialised scientific processors pioneered by Dr Seymour Cray, and currently built only by Cray Research and Control Data Corp in the US.

NEC becomes the fifth company in this now rapidly expanding sector of the industry by joining Hitachi and Fujitsu, two Japanese companies which earlier this year announced they would be making offerings in the supercomputer market in 1984.

In terms of performance, which is measured in floating point operations per second (flops), all the Japanese machines are about one to one-and-a-half generations behind the Cray Research XMP, which runs at 200 to 500 megaflops and is in current delivery, and the Cray 2 which runs at 600 to 1,200 flops and is scheduled for delivery in early 1984.

## IBM PC brings a chip famine

by Robert Parry  
A BOOM in personal computer manufacturing has created such an upsurge in demand for microprocessor and memory components that the most glamorous lines are getting in short supply. Lead times for Intel's 8088 — used in IBM's Personal Computer and its host of imitators — and 8086 processors are particularly hard hit, with customers now facing five or six months' delay between order and delivery.

"Lead times are certainly stretching out," says Intel's European operations manager for microcomputers Jeff Katz. "Three or four months back we were quoting four weeks. Now it's more like 24 weeks."

And in the US Intel's top microprocessor man Dave House



HOUSE... "Market is going crazy — it's not healthy and it cannot last."

## Steve Jobs wants to give Apples to the teachers

by Howard Karter  
APPLE Computer has launched a computer giveaway programme for 10,000 elementary and secondary schools in California.

The firm will donate £21 million worth of Apple IIB (65K) computers, terminals, disc drives, manuals, and Apple logo software. The retail value of each system is around \$2,364.

## US giant makes \$31m bid for Mathematica

by John Kavanagh  
A \$31 MILLION takeover could make Mathematica, owner of the Ramis English-like inquiry system, part of the giant Martin Marietta Corporation. The company will keep its name and operate as part of Martin Marietta Data Systems, a \$245 million services company.

The deal, to be put to shareholders next month, would make Mathematica an associate of the UK systems house Hoskyns.

## Trilogy a step closer to new mainframe

by Kevin Cahill  
TRILOGY this week unveiled the 6cm x 6cm chip which is at the heart of the company's new mainframe range. According to early reports, the chip — the first attempt at large-scale water level fabrication to go into production — is implemented in water-cooled emitter coupled logic, the industry standard semiconductor base for fast computers.

Unlike the current IBM thermal cooled module (TCM) the Trilogy TCM has a simple, one input one output, shielded water coolant, and mounts a total of 45,000 gates and 1,000 connecting pins per module.

The IBM TCM consists of about 100 separate chips mounted on a complex and expensive ceramic substrate interconnect board. The total gates per IBM chip is 600, to give a module total of 6,000, or roughly one-seventh the number of gates on the Trilogy chip.

The Trilogy chip eliminates the special TCM substrate board by incorporating most of the initial interconnections inside the chip itself. The Trilogy TCMs are connected by standard 14-layer printed circuit boards. About 30 TCMs will form the basis of the new Trilogy machine, which, as a direct result of the dense chips, will need only 40% of the power of IBM's current 3084 quadripresor.

The switching speed within the Trilogy chip is 300 to 350 picoseconds, which compares with a switching speed of 24 nanoseconds in the fastest current serial processor, the ICL Atlas 10 (alias the Fujitsu 380).

**Wilkes Computing**

**Announce the**

**NEW GEN II**

**RETRO-GRAPHICS**

**UPGRADES**

**Televideo**

**910/912/920**

**925/950**

**DEC**

**VT101/102**

**131**

**Lear Siegler**

**ADM 3A**

**ADM 5**

**Adds Viewpoint**

**FEATURES INCLUDE:**

- 4010, 4014, 4027 Simulation
- Local graphics intelligence
- Arc and circle drawing
- Polygon drawing • Area fill
- Crosshair cursor
- Optional 1/0 Interface
- Optional Light Pen

Televideo is a trademark of Televideo Systems.  
DEC is a trademark of Digital Equipment Company.  
Lear Siegler is a trademark of Lear Siegler Inc.  
ADDs is a trademark of Applied Digital Data Systems Ltd.

**Wilkes Computing**

Tel. (0272) 277399/25921. Telex 449205  
Bush House, 72 Prince Street, Bristol BS1 1HU

## IBM extends software deal

by George Black  
IBM has pushed its door a bit further open to the software people — and they have welcomed the chance to work with the company.

The joint marketing initiative, introduced earlier this year for the System/23, has now been extended to cover a broad range of machines, from the Series/1 and Systems 34, 36 and 38, through the 5280, 5520, 6580 Displaywriter and 8100 up to the 4321 and 4331.

The move is part of a liberalisation of attitudes inside IBM and a growing understanding that other people's software can be a strong selling point for IBM hardware.

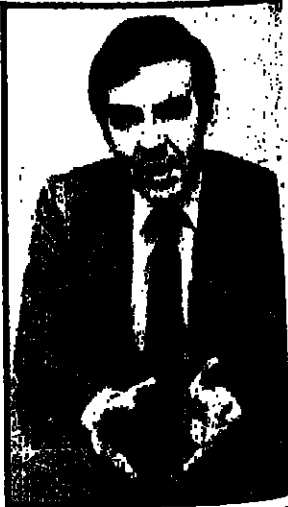
Ironically, while end-user oriented companies such as IBM, ICL, Sperry and Burroughs are moving more into partnerships with third parties, the pioneers in the collaborative business such as DEC, Data General and Hewlett-Packard are looking increasingly at the user market.

Already Computer Management Group (CMG), based in Croydon, is studying an IBM contract for the new scheme and expects to take up the offer. Its UK general manager Ron White said CMG was keen to be involved.

"We're particularly interested in the possibilities of a two-day deal to sell the 34, 36 and 38 computers," he said. "This is a step in the right direction for IBM. They have probably responded to proposals from American systems houses and now the UK is coming into line."

CMG has moved into the low-end of the IBM area, last year negotiating several big contracts worth at least £750,000 based on System 34s and 38s.

Data Logic's UK managing director Alan Thomas said it was a "very intelligent move" for IBM and would help to maintain the tremendous momentum it had built up in the market over the past year.



THOMAS... "Intelligent move"

## DEC to sell Aregon software in America

by Donald Kennett  
US GIANT Digital Equipment is to sell video software in the US for the UK's publicly-backed Aregon International in a joint marketing deal.

At the same time, DEC has bought an Aregon IVS-3 videotex system for the first of what could be many in-house applications.

Aregon's software runs on DEC Vax and PDP-11 minicomputers. The agreement formalises the close co-operation which has existed between the firms for some time.

DEC recently changed its marketing strategy from one where specialised teams attacked vertical market sectors to one of specialising in applications to sell across the whole market. Last year it announced its intention to make deals with software houses, and the agreement with Aregon is the first in the videotex field, although DEC minis are used by a number of videotex companies. Among them, the French company Steria and the Canadian company Informart have been particularly active in the US.

DEC's UK office systems marketing manager Roy Graham, who last year helped to set up the agreement in his role of US videotex

## A few direct answers to some of today's problems...

**Data expert wishes to lay it on the line**

A great line-up of modems on pages 5 to 10.

**Active computer with 8 terminals to support needs help**

Statistical multiplexers are ready and waiting on page 14.

**Enthusiastic computer person wishes to meet long line drivers**

There's a selected range parked on page 11.

- Modems
- Multiplexers and Concentrators
- Switching and Patching Equipment
- Business & Scientific Calculators
- Office Efficiency Equipment
- Voice and Data Local Area Network
- Diagnostic Aids
- Guide to Interfaces
- Cables
- Ribbons/Wheels

**FLOPPY DISKS**

maxell

Datallie

MEMOREX

For credit card orders trade or end user enquiries  
Tel. DISKING (0428) 722563

## ..It's all in the CASE book

It's easy to see why the CASE Direct Sale Catalogue has met with such an enthusiastic response. Everything a computer needs is here—from CASE direct sale catalogues to printers and ribbons, cables and PCs. There are also items designed to improve office efficiency, such as special furniture, dictation systems, teleconferencing... and much more besides.

Everything we supply is backed by a superb service that lives up to our products. So, send for the CASE book now, or telephone Watford (0923) 33500. And become another of our successful case histories.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Address \_\_\_\_\_  
Return to: CASE, FREEPOST, Watford, Herts. WD1 8XH

EDITORIAL			
Inquiries: 01-881 0642/0641			
Editor: David Craver			
Deputy Editor: David Craver			
Managing Editor: Kevin Clarke			
Features Editor: Robin Sedgwick			
Photo Editor: Robert Pate			
Software Editor: George Black			
Reporters: Donald Kennett, Nicola Moran, John Riley, Andrew Thomas			
Chief Sub Editor: Andy Thacker			
Deputy Chief Sub Editor: Nicky McGhie			
Sub Editors: John Corbett			
DISPLAY ADVERTISING		CLASSIFIED ADVERTISING	
Advertisement Manager: Harry Hudson		Group Advertisement Manager: Brian Dunton	
Deputy Advertisement Manager: Chris Oliver		CONSULTANCIES SALES: Andrew Stammers, Julia Hannaford, Sales Executives: Keith Gower, Chris Markiewicz	
DIRECT CLIENT SALES: Richard Harris, Sheelagh Gager, Michael Wainman, Sales Executives: Noel Macdonald, Trevor Barnstead, Catherine Caird-Smith			
Production: Heather Pittsford, Sharon Venn, Mike O'Neil, Maryling Price, Peter Thacker, David Lister, Martin Lawrence		CIRCULATION: Terms of circulation control: Computer Weekly is published on the following categories in the UK only: directors, company secretaries, management executives, civil servants, managers for computing, management/computer usage, managers/supervisors, analysts/DPM, officers, programme operators and computer field engineers and marketing personnel in the computer industry.	
Subscriptions: UK: £20, Europe £25.00, US, Canada & Mexico \$55, Australia £25, Students £20 Middle East, North Africa (airmail) £26 In South America, Central & South America £26, Far East, Australia & New Zealand (airmail) £26.			
Distribution: Price: International: \$50.00, UK: £10.00, Overseas: £10.00, Post Office: £10.00, Retail: £10.00, Single copies: £1.00, Back issues: £1.00, Single copies			



# Rodime to hit US — twice over

by Robert Parry

RODIME, the Scottish manufacturer of Winchester discs is breaking into the US on two fronts.

Ampex, which until last month was reselling Rodime 5 1/4-in. drives from Scotland under its Paxis label, has exercised its option to build the drives under licence.

But the importance of a second source in the US, planned since the signing of the Ampex deal, is overshadowed by Rodime's imminent move to start manufacturing its Winchester drive units in the US on its own account.

"When we set up the Ampex deal, we hoped to get a second source quickly," said Rodime's

marketing manager Malcolm Dudson. "It has not been particularly quick, but it has happened. Now Rodime has plans for its own US plant, which are very well advanced. The hope for our own US manufacture, which we have always had, has come to fruition sooner than we expected when we set out."

The bulk of Rodime's order backlog, 65% said Dudson, is in the US, so building drives there rather than in Glenrothes, Scotland, and shipping them over, must be appealing. Those order backlog figures apply only to drives sold under the Rodime name, and do not include the Ampex drives.



DUDSON... Plans for Rodime's US plant sooner than expected.

Ampex is the only US company building Rodime drives or selling them under another name. There are no other licences, said Dudson. Ampex did not take a large part of Rodime's output, he added, and only has rights to the initial R0100 series and the early R0200 series drives.

"Specifically they do not have

the high-capacity 200 series drives nor the 3 1/2-in. drive," Dudson added.

But Ampex has plans to extend its Rodime-based offerings. "We will move to put Ampex's plated media into the Rodime boxes around September," said Carter O'Brien, Ampex's manager of disc product marketing.

The money has been raised by private investors, a government loan and a £100,000 injection by City venture concern ICFC.

## Dealers are letting us down, says Globe MD

by George Black

A BRITISH micro builder has blamed unreliable dealers for holding up the progress of its machines. Most dealers are under-financed and much slower to pay suppliers than they are to sell their hardware, says Alex Paterson, managing director of Globe Business Machines in Somerset.

Globe sells through 45 countrywide dealers; but according to Paterson it has had to dispense with the services of at least as many since going into business last October.

Globe's Intel-8086 chip machine was put together on Paterson's kitchen table at an initial development cost of £4,000. But Globe has had to get backing of about £500,000 to get into production and keep the business going — much attributable to slow payment by dealers, says Paterson.

The money has been raised by private investors, a government loan and a £100,000 injection by City venture concern ICFC.

## SALES BRIEF

### BT spends £60m on STC telexes

STANDARD Telephones and Cables has sold £60 million worth of telex terminals to British Telecom since the beginning of 1982, following a third big order of £29 million.

The equipment won a 1983 Design Council Award, and brings word processing into the tele scene.

### Council update

BURY Council has replaced its Rediffusion Seecheck equipment with an R2805 Telecentre from the same company, to check data used for payroll, rents, rates and register of electors among other applications. The data runs on an ICL 2900 series mainframe after verification.

### Cashing in

UK OEM Chapman Cash Processing has ordered three more links from hardware maker Comput Automation for use in British Telecom's All Change system to count cash collected from telephone boxes. More orders are likely to follow as BT extends the system, introduced last summer, to all its regions.

### Cable contract

BRITISH Telecom has won a £1 million contract to lay 280 miles of cable to link Bahrain, Qatar and the United Arab Emirates, using its cables ship Iris. The cable will be made in Japan. Fujitsu was given the main contract worth £30 million, with the Marine Service Division of British Telecom international as sub-contractor.

### Design aid

BRITISH Telecom has gone to the CAD arm of the Delta Data group for a program to help design terminal equipment such as telephone handsets. The program, called Duct MK IV, will run on a Digital Equipment Vax computer alongside a draughting package.

### University choice

BIRMINGHAM University has chosen Bedford-based Insight Terminals for 270 video terminals. The order includes Alpha and graphics terminals for connection to the Honeywell mainframe at the university's computer centre.

### Swedish links

ICV Information Systems has picked up a £500,000 contract to develop videotex link between London and Stockholm from the Swedish Post Office. The link will be used to give anyone in Scandinavia with a videotex terminal access to international information gathered in London.

### \$4m mainframe

US COMPUTER giant Sperry, which recently dropped its Unisys surname, has scored a \$4 million mainframe order from a large Italian supplier of financial information. The system will be based on the Sperry 1100/91, and will be used to bring 85 of Italy's 95 chambers of commerce into a financial network.

### More PABXs

PLESSEY has won another big order from British Telecom to replace on the heels of the £25 million contract to supply a new telex exchange in London. The new order, worth £6.4 million, is for more PABX systems, bringing total sales for the product to £70 million since first orders were



EDWARDES... "Now I invite Mercury's many supporters to back up their words with action."

## Open govt computing projects to public debate, says the BCS

by John Kavanagh

POLITICAL parties have been challenged to open the design of big government computing projects to public debate and to put tight controls on standards of systems used in public services such as health.

The call has come from the British Computer Society's Computers and Employment Specialist Group, which also wants more technology training for school-teachers and staff of all levels. The group has 100 regular contacts in fields ranging from universities to personnel management, union work and consultancy.

A motion passed unanimously at the group's May meeting says the forthcoming election is the most important ever for the development of employment and technology in the UK.

The rapid rate of progress demands that society can respond to technical changes, the group says.

It calls for paid leave for technology training and updating for workers at all levels. One result would be that employees would be better placed to negotiate "proper" new technology agreements to ensure technological progress is used to best effect.

It also wants "massive expansion" of the microcomputers in schools scheme, with more em-

phasis on teacher training and software. And it demands an end to "stop-start government support for computer science". The group says the UK has no long-term policy here.

The design of big government systems should be subject to a public enquiry before taxpayers' money is committed, the group says. And government funding of research and development should be open to public scrutiny.

"It's not always clear what the criteria are for awarding or refusing funds," said the group's secretary, Oxford University research officer Hugo Levie. "Parliament in particular should monitor this funding more closely."

"We also feel there is not enough public debate on big computing systems projects. Major public investment could be made from very narrow considerations."

Traditional and knowledge-based systems should be licensed if they are used in basic public services, the group says. Levie added: "The present government claims to be sponsoring the development of information technology but we think the directions it has taken are not always to the advantage of the computing profession and the public. They have put computers before people."

## Why ICL quit chess

ICL has checkmated the UK's leading annual chess tournament by withdrawing its sponsorship after seven years. The Hastings International Chess Congress is looking for a new white knight to put up the £16,000 it needs. Last year the king of the UK computer industry paid £10,000 and Hastings Council paid the remainder.

The tournament is good for the town and for the sponsor. It attracts some 400 players and many more enthusiasts during the slack month of December. The sponsor can expect around 1,000 column inches of coverage in national and

local newspapers in the UK alone. ICL has a clear target for future sponsorship. It must be educational and related to computing. "Chess is educational but we're thinking more in terms of backing school projects," said a spokesperson for the company. "And £10,000 is quite a proportion of what we will spend. We feel it's best spent as five or six smaller chunks."

This year ICL is spending £2.5 million on a national television and national press advertising campaign. In an advertisement it can put across its own specific message, said the company.

July 4th 1983  
will be Independence  
of America Day

# Put money where your mouth is — Edwardes

by Donald Kennett

SIR MICHAEL EDWARDES last week told dissatisfied Telecom customers to put their money where their mouths are.

The part-time chairman of Telecom rival Mercury challenged British industry to become Mercury customers, although he admitted that the company was at least a couple of years away from being able to offer a full range of services.

Edwardes, in his first public speech since moving to Mercury, told the Online Business Telecom conference in London:

"Everywhere I go I hear support from businessmen for the launch of a competitor (to British

Telecom) and for the stimulus this has provided so far. So now I invite Mercury's many supporters to back up their words with action."

"To place orders with Mercury is an exciting venture to a new field. If British business wants the benefits of competition in telecommunications, it must have the courage to undertake that venture jointly with us."

Despite his belief in the benefits of Mercury competing with BT, in terms of the effect on UK manufacturers as well as on BT, Edwardes did not want to see the competition extended any further.

"Any government committed to liberalisation needs to be patient," he said, "and not yield to the

pressures from either side of the political spectrum, either from those who want to turn the clock back by freezing and undermining liberalisation, or from those who argue that liberalisation should be taken to the point of a total free-for-all in the erroneous belief that this will show some quicker — in fact instant — results."

He praised the government's liberalisation programme, including the package of decisions that followed the Littlechild report — omitting to mention that the report had recommended the introduction of still further competition.

But he said it was not surprising that there had been so little by way of results in the marketplace.

Developing new equipment, building a new national network, creating new companies and convincing capitalists of the credibility of new services all took time.

"A ten-mile race is not abandoned because no runner has passed the winning post after five minutes," he added, "nor is there much point in sending another group of runners from the starting line in the hope of quickening the pace."

"In other words, the pace of the government's liberalisation policy cannot really be judged for another five or even 10 years and this is unfortunately longer than the normal political timescale."

## Especially for Unix based Systems

### BSL

In most progressive operations, the use of computers is not an end in itself, but a means to an end. To bring the considerable advantages of computerisation to every type and size of organisation at a realistic cost, we at BSL have developed software packages capable of meeting every conceivable requirement in accounting, stock control and order processing. And we've recently added to our widely used existing range with a series of computer packages which offer even greater efficiency and flexibility.

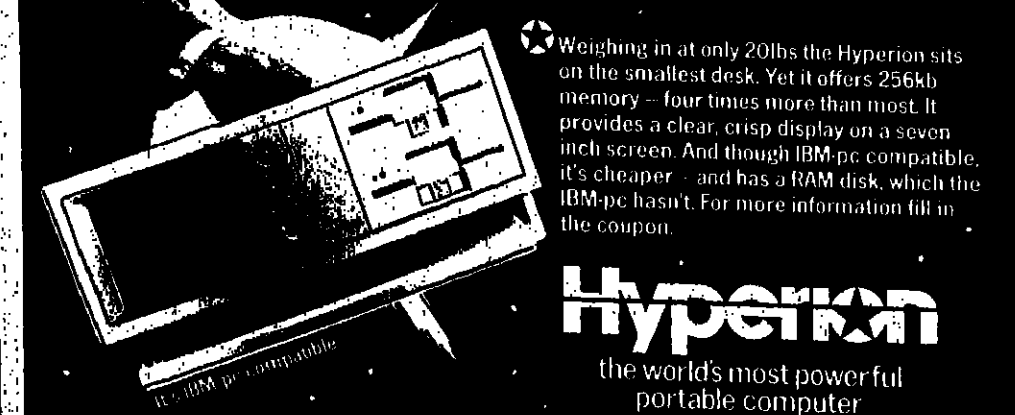
Product and customer support is the backbone of our success, and all BSL products carry a three-month warranty as well as being the choice of a proven 20,000 also provide professional software, either to your exact specification or purchased directly by us following consultation with you. We can offer you a computer system that will perform exactly as you require, and at a cost that will bring all the advantages of the computerised computer within your reach.

If you would like further information on any of our standard products, or if you would like to discuss your requirements in more detail, please contact us today.

Billing Systems Limited  
88 Elm Road,  
Wokingham,  
West Sussex RG11 1QV  
Tel: (0494) 800814

Please contact the following:  
Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
Postcode \_\_\_\_\_  
Tel. \_\_\_\_\_

## THE BIGGEST STAR IN PERSONAL COMPUTERS IS THE SMALLEST



**Hyperkon**  
the world's most powerful portable computer

GULFSTREAM TECHNOLOGY LIMITED Unit 3A, Tunnel Estate, 726 London Road, West Thurrock, Grays, Essex RM18 1LS. Telephone: 04028 4926  
Please send me full colour brochure of the Hyperkon Portable Computer.  
Please send me details on how I can become a Hyperkon Portable Computer Dealer.  
I am a member of the Bytes Group.

My name is \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
Postcode \_\_\_\_\_  
Tel. \_\_\_\_\_

# The intelligent alternative to a 3270.

As a data processing manager with an IBM mainframe and 3270 network, you'll appreciate that the job has its problems.

Especially when you are trying to cater for everyone's personal needs.

So at STC Business Systems, we've developed something to make your life a little less hectic. The 3290.

The 3290 is a genuine 3270 terminal which can be connected to all ITT 3280 controllers, or communicate directly with the mainframe.

It's also a microcomputer, and at the touch of a button can switch between the two.

A multitude of software packages come with the 3290 to help with personal computing needs.

And with STC, you can be sure to receive the support and back-up of one of Europe's largest telecommunications companies.

For the intelligent data processing manager, STC's 3290 is the obvious choice.

If you'd like details, send the coupon or phone Peter Manson, National Data Sales Manager on 01-300 7788.

For further information on our 3290 Intelligent Terminal send this coupon today to: Barbara Pearson, STC Business Systems, Lion Buildings, Grouse Road, Hollingbury, Brighton, Sussex BN1 8AN.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone \_\_\_\_\_

**STC Business Systems.**  
THE INTELLIGENT CHOICE.

01-300 7788



# Hi-fi maker into home computers

by Robert Parry  
JAPANESE hi-fi maker Sanyo Marubeni has pushed further into micro with a range of desk-tops, including a full 16-bit machine and more eight-biters. And it is gearing up to enter the low-price home computer market - once things have settled down with machine specifications.

The new business machines add three more models to the range already on offer through UK distributor Logitek, giving greater storage and graphics capability. The MC1150, built around twin 280A processors - one handling I/O operations - doubles the disc storage of its predecessor the MBC1000 by including a second floppy drive,

while the 1250 brings high resolution graphics to Sanyo's business computer range.

Both these machines use a redesigned detachable keyboard, with function keys and palm rest, which is shared by the new 16-bit MBC4050. This uses Intel's 8086 chip with a maximum of 512K RAM, running under CP/M-86.

MS-DOS, the rival to CP/M-86 in the popularity stakes for 16-bit micro operating systems, will be available soon, and both will be bundled with the hardware.

The latest of Sanyo's machines were shown to the mass of Sanyo dealers for the whole of the company's "brown goods" range - the televisions, radios, hi-fis and microwave ovens as well as office



MADDEN . . . Looking carefully at what the UK market wants.

products such as micros and dictation machines.

Logitek sales director Frank Noon says he found little in the way of potential new dealers for the micros, but an encouraging interest in the hardware and software for the Sanyo dealers' own use. A package to manage television rentals, from Pace Computing in In-

land, seemed particularly popular. But these general electronics Sanyo's home computer, which it is likely to bring out for next Christmas. "We have machines in Japan already," says computer manager Derek Madden, "but need to look carefully at what the market here wants in terms of performance and price."

## A do-it-yourself IT training pack

by Nuala Moran

LOCAL government managers are being told to let their children help them learn to use information technology to increase their efficiency at work. This is one recommendation of a computer learning programme launched last week by Sir Duncan Lock, chairman of the Local Authority Management Services and Computer Committee, to help local government officers understand information technology.

Aimed at senior managers, the Applications Demonstrations Package, which runs on the BBC Acorn, has been developed through the Management Awareness Project, which was partly funded by IT82 and the Department of Industry.

In addition to improving managers' general knowledge of computers, and enabling them to assess gaps in their knowledge of IT, the package demonstrates computer techniques such as computer graphics, and gives users confidence through practical experience.

The idea is that managers take the equipment home for a couple of weeks, thus allowing them to become familiarised, without fear of making fools of themselves in front of colleagues.

This is where the children come in. Clive Holtham, chairman of the Management Awareness working party, said: "The manual advises managers to involve their children, because we found that they are simply the best teachers. Children have no inhibitions about using the equipment and are not frightened

of making mistakes."

The package, including a manual which describes the features being demonstrated and provides instructions on how to use the software, costs £350. It brings the cost of the computer equipment and demonstration to about £1,000, which is equivalent to sending one manager on a week residential course. The package can be used to train 25 managers a year.

Commenting on the last Lock said: "This is not designed to make managers into computer experts, but to acquaint them with the equipment available. It also helps them decide what equipment is best suited to their needs and enable them to talk to technicians producing the machines they want from equipment."

He emphasised that the pack was all British. "This is the package of its type, and local government is leading the field in this sphere."

The Local Government Operational Research Unit produced the software, which can demonstrate various applications, including personnel management, graphs for scheduling vehicle routes as housing programmes.

The Management Awareness project was the centrepiece of local government's effort in IT82, and is being continued. The theme of IT 82 was awareness, and the local government stream single managers as being of particular importance, and decided early on to devote its effort towards it.

## GEC wastes no time with new-style supermini

by Philip Hunter

GEC Computers has shot up in the price/performance ratings with the launch of a 32-bit supermini based on a new type of processor. The company last week announced that it had applied for a patent for the revolutionary processor based on the pipeline technique used in its just-launched Series 63 mini.

Series 63 has a four-stage pipeline which triples the speed of program execution by using time otherwise wasted in waiting for instructions or data to be fetched from memory. The first version launched simultaneously in the UK and US was 50% faster than the Vax 11/780, the top machine in Digital Equipment's Vax range, in the standard POPR 12 benchmark.

Managing director Colin Thurston claims that pipelining is the key to the high performance. A basic Series 63 configuration costs £80,000 with two Mbytes main memory, compared with £140,000 for the Vax 11/780. But ULS electronics company Gould still has the most powerful supermini, with its top range 32/8780 executing seven million instructions a second compared with three million for the Series 63 and just 1.2 million for the Vax 11/780.

The 32/8780 costs about £150,000 for a typical configuration. But Thurston says GEC will be launching bigger models in the 63 range later this year.

The £5 million development of Series 63 was shared by GEC Computers and A.B. Dick, the GEC Group's US subsidiary, which specialises in office automation. But all the software development was done in the UK, and the machines for the market will be made at GEC's factory in Dunstable.



SINCLAIR . . . "Fostering new products."

## Sinclair to open £2m centre

by Andrew Thomas

MULTI-MILLIONAIRE Clive Sinclair is spending two of his millions on a new research centre. Scheduled to open this autumn, the MetaLab is designed to complement the R&D activities of Sinclair Research.

"The MetaLab will act as an incubator, fostering new products from initial idea to commercial launch," says Sinclair. "Not only in computers and television, it will also open up new fields ranging from battery technology to robotics."

Negotiations for the purchase of a suitable site for the centre are under way in the Cambridge area, and the initial staff of ten is expected to grow to 40 or 50 in the first year, said a Sinclair spokesman.

Directing the MetaLab will be Richard Cutting, managing director of Cambridge Consultants, with Sinclair Research director David Southward and Jim Westwood.

"We believe it represents a new R&D concept for the UK," says Cutting, "and will offer tremendous possibilities to those involved."

despite the prospect of a surplus of 14 million tonnes there was no possibility of a surplus in Europe.

(continued from page 17)

terms of the most integrated product that we evaluated, this accolade must be given to Data General's CEO (Comprehensive Electronic Office). CEO integrates word processing, electronic filing, electronic mail, administrative support, calendar management and decision support, all in the one package. We were also

impressed with the integration of office automation and data processing. These environments on most systems are separate and divorced from each other, but Data General has integrated them to a remarkable degree. Another new development is the CEO Document Exchange Software. Data General now

offers users with existing Wang word processing systems the facility to integrate these with its own CEO systems. The software translates the editing codes of documents into a compatible format and transmission of the documents between the two systems is through a bisynchronous connection.

*Alex: Now we can really integrate our data and word processing - while still keeping our Wang word processors.*  
*Brian.*

# We may not be the 1st name you think of, but we'll be 2nd to none on your short list.

In fourteen years, Data General has supplied 120,000 computers worldwide.

We have supplied over 10,000 systems in the UK. We are among the Fortune 500.

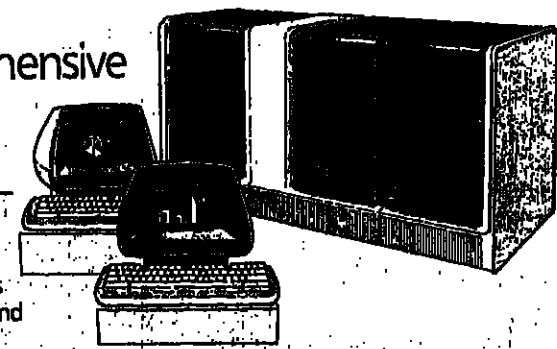
Our computers from the desktop CS/5 to the superMV10000 are compatible throughout the range.

They're also compatible with some rival systems. (Which is very cost effective when you're linking our computers to systems other than ours.)

We don't merely sell the 'Machinery'. We can undertake total projects in total co-operation with you. From applications software design to hardware suited to your specific needs.

Backed by very comprehensive support contracts.

The new MV10000 is the most powerful computer in Data General's Eclipse family - 16 megabyte main memory and up to 18.5 gigabytes of online storage. It is the industry's fastest 32 bit virtual memory computer, and is capable of supporting up to 192 workstations.



We deliver the goods that deliver the goods.

We'll even provide a 99% up-time guarantee for your system. Which not only demonstrates our confidence, but says quite a lot for our equipment's reliability.

Next time you're putting a computer system out to tender you'll probably think of your previous supplier first.

Think of Data General second.

We're rarely in that position when it comes to the best solution.

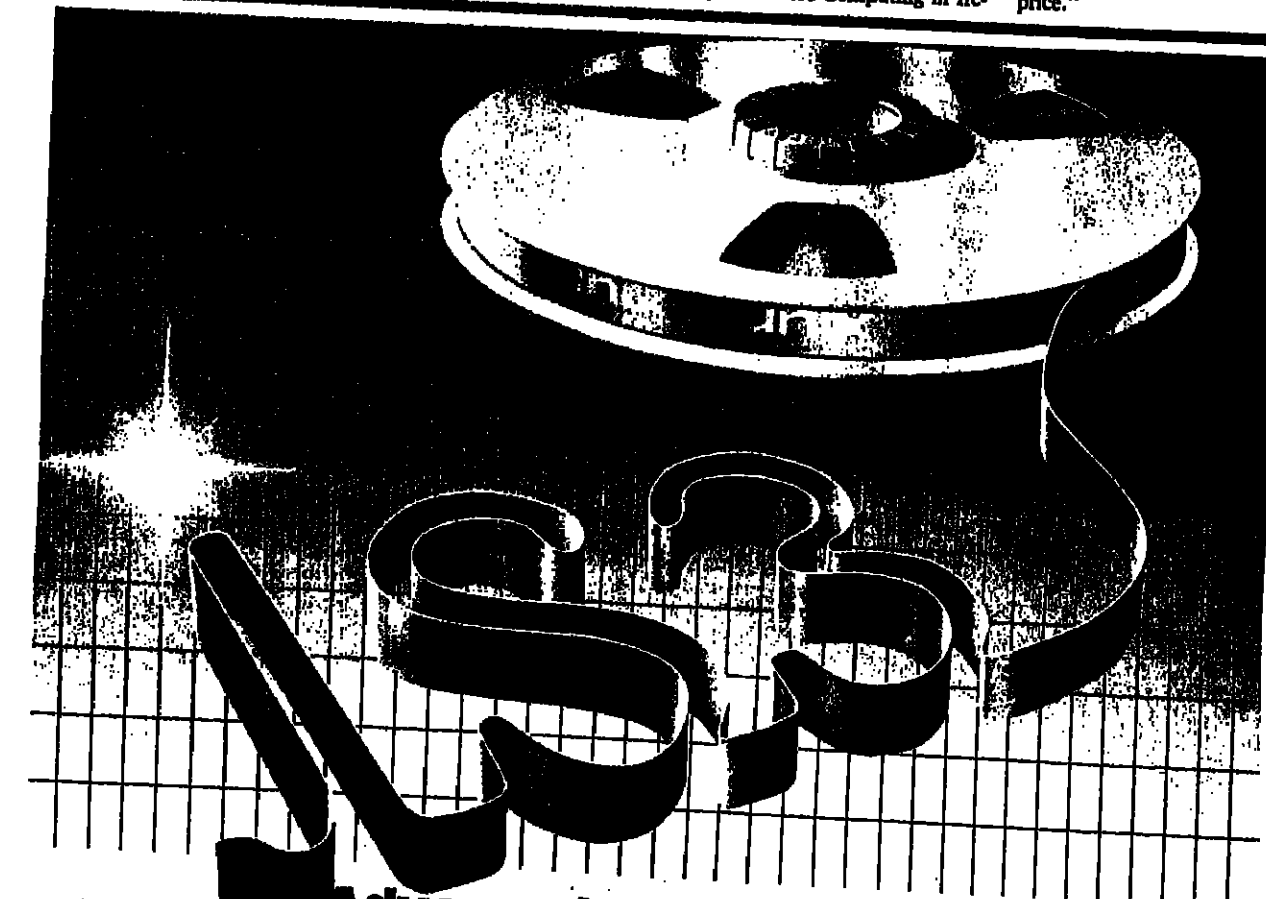
And no one is further ahead in technology.

Marketing Communications Division, Data General Ltd., Hounslow House, 724-734 London Road, Hounslow, Middlesex TW3 1PD.

I want goods that deliver the goods. Please send details of your Eclipse-based systems.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
Tel. \_\_\_\_\_

**Data General**  
COMPUTERS



## Advanced productivity systems for software development and office automation.

**unix**  
based software

Part of our **XUARE** product range

Productivity will improve with a UNIX operating system. You will gain more productivity with one of INTERACTIVE's expanded UNIX systems. But system designers, programmers and support personnel will achieve the best gains with the complete set of tools provided with INTERACTIVE's Advanced Productivity System (APS).

Two versions of the Advanced Productivity System are available. IS/3 is the solution if you are looking for a standard commercial system based on UNIX software. It is a full implementation of UNIX System III. IS/3 has enhancements, including increased block size, a queuing system, and streamlined system management tools, to make it an even more productive system.

If you need UNIX software facilities running under VMS, IS/WB is the answer. IS/WB is fully integrated into DEC's VMS environment; it is not just a separate subsystem. So you will have a logical integration of both operating environments, and, more important, much higher performance than other emulation systems.

Our systems come with complete support, maintenance and training. Other productivity systems and additional packages based on UNIX software, including RJE facilities, communications, and cross compilers are available.

If you are interested in productivity, you will be interested in APS. For more information, please return coupon to:

Bell Telephone Manufacturing Company n.a.  
Information Systems  
Francis Wellesplein 1  
B-2018 Antwerpen, Belgium  
Tel./Intern.: 32 3 257 17 17 - ext.: 1066  
Telex: 72 128 BELLA B

**Coupon**

Yes, please send me more information about:  
☐ Programming tools  
☐ Office automation  
☐ General  
Configuration:  
☐ POP 11/70 ☐ existing  
☐ VAX 11/ ☐ expected  
Name: \_\_\_\_\_  
Function: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
Tel.: \_\_\_\_\_

UNIX is a trademark of Bell Laboratories, AT&T. IS/3 and IS/WB are trademarks of Interactive Systems Corp. DEC and VMS are trademarks of Digital Equipment Corp.

Bell Telephone Manufacturing Company

**ITT**



# SOFTWARE FILE

## IBM loses grip on CICS market

IBM's share of the CICS applications development systems field fell from 84% to 48% in the past four years, according to a market survey just published in the UK.

The comparative consumer report by the Merlyn Corp of Georgia is a 200-page document based on data gathered by Focus Research Systems, Connecticut.

Focus canvassed 356 current users of applications development systems and 91 organisations which were thinking of taking them up. Eight competing approaches were studied.

A third of users of IBM's DMS system said they would not recommend it to others. And a third of them said they did not use it themselves to develop the bulk of their applications.

In 1978 only three such CICS solutions existed, with IBM dominating the area. Since then Oxford Software's UFO and Cincom's Mantis have made inroads into the

IBM territory, with UFO gaining almost a quarter of the clients and Mantis establishing an 11% foothold.

Shortage of CICS programmers is the main reason for choosing an ADS, not the backlog of applications waiting to be programmed. And lack of training available for recruits to the CICS business was the second main reason.

Users want online systems running under CICS, which means that batch systems running Cobol programs under DOS/VSE or MVS must be interfaced to CICS using tools like DMS. But the special skills and enormous amounts of programming time needed to do this are not available, says Merlyn. And with a database management system thrown in, the dilemma becomes even more acute.

Adopting ADS technology has given data processing departments much greater ability to test and

debug during design and a much improved turnaround time. Cost of developing applications has also fallen fast. But ADS has so far done little to reduce end-user dependence on the central DP unit.

UFO and Mantis users both reported notable advances, while DMS users frequently found their approach created new problems such as design and coding limitations and inability to cope with complexities. Mantis was generally highest rated.

But it was criticised for weakness in access to database and VSAM files - Cincom says this is being put right. UFO got all-round praise, except for some loss of online performance.

Cincom's UK managing director Terry Booth said he felt the report accurately reflected the situation. "It shows that Mantis is a real language, while the others are just productivity aids," he commented.



BOOTH... Claims that the opposition are "just productivity aids."

# MICRO NEWS

## Mattel's challenge to Sinclair is child's play

TELEVISION games merchant Mattel Electronics is to spread into the lucrative home computer market. It will launch a machine into the Sinclair Spectrum arena late this month, and aims to pick off the opposition through its aggressive pricing and the machine's hardware features.

Aquarius, Mattel's first home computer product, will offer colour and sound to take advantage of the company's existing Intellivision TV games programs, and come with a basic four Kbytes of RAM.

But where it will win over competitors like the Sinclair Spectrum, the Oric and the Texas Instruments small machine is its £89.95 basic price allied to the facility to take plug-in ROM cartridges to carry the software, says Mattel's UK managing director Michael Lurch.

"This is its most important feature," says Lurch. "It means you don't have to be able to manipulate a cassette recorder, so anyone -



LUNCH... "Even the youngest children can use it."

even the youngest children - can use it."

The initial offerings on ROM cartridges, five of which will be available at launch, will be the most successful Intellivision games, plus a spreadsheet program Finform. "Spreadsheets for home users give a very powerful and useful tool for a range of things from planning household expenses down to running a diary."

Lurch reckons his Finform VisiClone will give a flexible household budget program compared to those offered by others in this part of the game. To run Finform users will need more than the basic 4K machine. The 16K RAM expansion plus the cartridge port expander will be needed as well as the Finform ROM cartridge, bumping the price up to just under £240.

## Show sheds light on optical discs

OPTICAL discs are at last beginning to get off the ground for archival storage. At the National Computer Conference in California, there was a handful of products on show or being talked about, with real live systems likely to appear in the US around the beginning of next year and earlier in Japan.

As with many of the new high capacity memory technologies, Japanese companies are well to the fore. At the NCC the only machines present were from Japan - even if they were not fully functional.

The main US contender at the show, Storage Technology, only had a storage board, though claimed the equipment had been shown at its recent board of directors meeting.

Panasonic had the most complete system on show, but was vague as to when it would be available as a working system to customers. The optical disc store was

integrated into a complete document file system, tying together optical discs storing up to 10,000 sheets of A4 document per disc with a scanner/printer unit for getting the information into and out of the discs.

The discs record data on a tellurium oxide thin film, protected by acrylic layers, with a semiconductor laser. The eight-inch discs are write only; data can be put on, through the scanner unit from existing documents or via the keyboard, but cannot be erased or altered subsequently. The system is only useful for archival storage.

All parts of the system are made within Panasonic, and the complete optical document file system, with links to facsimile lines for transmission of documents, costs a hefty \$60,000 to \$70,000. The recorder alone will cost about half that amount, while the blank discs will cost about \$750 each.

compared to the other Japanese machine on show (if not actually working) at NCC. NEC's unit was spinning its discs, and flashing the odd light emitting diode, but the controller subsystem needed to link the disc store with a computer was still in Japan. "It works in Tokyo," assured a spokesman on the stand.

The NEC unit uses discs developed by US company 3M in co-operation with NEC, and these will be priced as low as \$100 a disc in volume orders. Each LP-sized disc carries 1.3 gigabytes of data - around 15,000 to 20,000 A4 documents, estimates NEC - again for archival use only, as the discs are classified "write once, read forever" by both NEC and 3M.

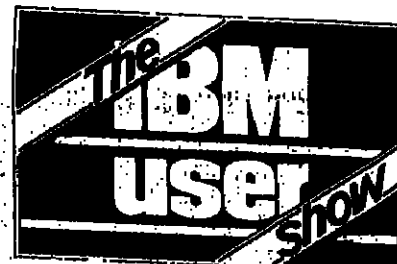
The \$15,000 machine should hit the US during the first quarter of 1984, (October or November of this year in Japan), and NEC marketing forecasts look to sales of 5,000 units over the next three years.

ARE YOUR INFORMATION SYSTEMS DEPENDENT ON IBM ARCHITECTURE? IF SO..

COME TO THIS CONFERENCE

It's where you'll hear up-to-date, vital information on plug-compatible systems, growth paths, productivity capacity management, networks and much, much more. Presentations will be made by the top technical and management experts in the field.

For three full days these issues and their implications will be discussed, first from the platform and then by the delegates.



Wembley Conference Centre  
London 12-14 July 1983

For full conference details simply clip your business card to this advertisement and send to:

Online Conferences Limited,  
Argyle House, Northwood Hills,  
Middlesex, HA8 1TS, UK.  
Phone: Northwood (09274) 28211  
Inlt. Phone: 44-9274 28211  
Telex: 923498  
Fax: (09274) 20709 (G2/3)

The independent show for the independent user

## HP signs up CP/M for its 16-bit micro

DIGITAL Research has had a boost from Hewlett-Packard in its bitter clash with Microsoft to gain the upper hand in the 16-bit micro world. HP has signed a deal with Digital to put its CP/M-68K operating system on the HP Series 200 machines.

"CP/M-68K adds another dimension to the 200," said HP's third-party software manager Stacey Plemmons. "The 200 is not just an engineering computer but a powerful workstation which will offer growth for CP/M users outgrowing their eight-bit and IBM PCs."

HP admits that it is not well known in the micro market as yet. But Plemmons said the UK subsidiary would start a big push on the 200 very soon, including an attack on the IBM Personal Computer market. It is to aim at big companies, using its own sales force, and is looking to dealers to sell to small businesses.

"CP/M gives us the applications software that is mandatory in the business systems market," said

Plemmons. Digital believes there are nearly 4,000 packages written for machines running under CP/M. Paul Bailey, Digital's director of European operations, said Hewlett-Packard was the biggest company so far to announce it is using CP/M-68K. The sign would be strengthened in September when Digital brought in CBasic and Pascal languages on it, he added.

HP's backing for Digital comes at a time when competition with operating system rival Microsoft is turning ugly. Only this month Microsoft's claim that UK Sirius distributor ACT had stopped supporting CP/M-86 was angrily denied by ACT and Digital.

But probably as significant as this conflict is HP's decision to introduce the Unix operating system on the 200 machine in the near future. CP/M has won further backing from Xerox, which has chosen CP/M and CP/M-86 for its 16/8 16-bit and eight-bit personal computer.

## Package eases tax headaches

A CORPORATION tax software package - claimed to be the first of its kind available in this country - was introduced last week by a computing-publishing-accounting triad.

The three are Oyez Longman Publishing, accountants Blackstone Franks Smith and Quantec Systems and Software of London. Their package, Taxbase, is being launched on a range of micros, including IBM, Sirius, Xerox, Osborne and Olivetti.

Quantec managing director Robin Cooke-Hurle said a lot of smaller companies had looked on corporation tax as a "sword of Damocles hanging over them". Now they would be able to optimize their choice of options under the tax system, he said. And the Inland Revenue has invited Quantec to comment on its trial project for self-assessment of corporation tax.

Quantec is also looking at the possibility of putting Taxbase on Apple hardware.

## Courtroom system to get rewrite

THE police and magistrates court system FAMS is to be rewritten over the next two years at a cost of £250,000.

The system's user group, which represents 10 current installations and three more on order, has commissioned the authors, Sound Techniques of Suffolk, to undertake the work. The 1975 system ran on Multibus minis from ABS Computers of Woking and Brighton. But its replacement will be on ABS' new MX machines and will be in the firm's own language Simple instead of Assembler.

User group chairman Chris Harrison said the workload had increased dramatically over the past decade and FAMS, though excellent, could no longer cope with the volume. Response time was suffering and the system could not be accessed by as many users as necessary.

The latest version, being carried out by a team of six, will complete its first stage in January next year and be concluded in March 1985.

Software File is compiled by George Black

## Symtec moves into micro retail trade

by Andrew Thomas  
A SOUTHAMPTON software house has moved into the hardware retailing market by opening two microcomputer shops.

Symtec Systems, which also has an OEM agreement with DEC, launched its Computerway scheme last week with stores in Southampton and Guildford.

Computer retailing giant Computertand started its UK operations in Southampton six months ago, and plans to open 10 more by the end of the year.

Computerway sales director Malcolm Lewis-Fry claims that the initial response has been good. "It's been fantastic, actually," he says. "We're well on target in

our first week. It's a whole new way of selling - you never know who's going to walk through the door."

In addition to the Commodore, Oric and Epson machines aimed at the home market, Computerway also sells Sirius, Osborne and Olivetti micros, and is currently negotiating with IBM and Digital Equipment for their personal computers.

Lewis-Fry says more shops are on the way. "We don't want to over-stretch ourselves," he says. "Too many people have gone under by doing that, but there will be more stores in the future. At the moment we're looking at an area stretching North to the Midlands."

## 'Centre of excellence'

BRISTOL-based systems integration company Basys Computers has set itself up as an independent UK "centre of excellence" for systems built around the Motorola 68000 microprocessor. As well as supplying 68000 hardware and software, Basys provides a technical consultancy service, encompassing feasibility studies, project estimation, software design and hardware evaluation.

"Our forte is computer solutions for both commercial and scientific users," says marketing director Mike Townsend, "and with the support now available on the 68000 this was the obvious route to take."

The hardware supplied by the company comes from Sage, via

Bristol-based distributor TDI, and Wicat, through Software Sciences. This line-up gives a range of well-thought-of machines starting at about £3,000, which give "unequivocally the best performance per pound on the market," says Townsend.

But as well as the 68000 systems design service and the hardware and software offerings, Basys has started a "cash-and-carry" exercise in the Bristol area selling the eight-bit Globe CP/M system bundled with Wordstar and Mailmerge plus a printer for £3,000.

The 10 engineers at Basys all come from primarily software backgrounds, says Townsend, who was until recently with London-based 68000/Unix computer builder Bleasdale Computers.

## Fast chips race is on (again)

THE season of fast chips has arrived again. Japanese companies are busily claiming firsts and fastests with Josephson Junction devices, while in the US Hughes Aircraft Company has produced a CMOS silicon on sapphire chip under the US Defence Department very high speed integrated circuit (VHSIC) programme.

The Japanese government Electrochemical Laboratory at Tsukuba has built a Josephson Junction (JJ) logic element switching at 7 picoseconds - millions of millions of seconds - which it claims beats the previous records of IBM at 13ps and NEC

at 10.8ps. The speed per gate was arrived at through the 70ps it took a signal to travel through an array of 10 gates.

Meanwhile NTT has put together a prototype JJ one kilobyte RAM, incorporating around 10,000 JJ elements with I/O control circuits on a single small circuit board.

The Hughes device crams 72,000 transistors on the chip, and operates at 80 MHz. The CMOS silicon on sapphire technology used is inherently hardened against radiation and avoids the liquid helium cooling needed for JJ devices to work.

Micro News is compiled by Robert Parry

## 32-Bit UNIX? A unique opportunity

Perkin-Elmer offers fully supported 32-bit UNIX\*, probably the world's best timesharing system, in an unbeatable package deal based on the super-compact 3210 system. Application development is exceptionally easy and fast, performance is optimised for good interactive response, there's a vast range of time-saving O/S-linked utilities.

Here's what you get:

Commercial users:

Hardware  
Model 3210 cpu  
512KB memory  
64MB disc  
8MB/sec throughput  
Dual bus architecture  
8 user ports  
Software  
Edition VII\* UNIX (binary)  
Source Code Control System  
Full screen editor  
Word processor  
FORTRAN 77  
PASCAL  
BASIC  
C  
Berkeley enhancements

All this for just  
**£36,920**

\*UNIX is a trademark of Bell Laboratories  
\*Edition VII is a product of Wollongong Group Inc.

PERKIN-ELMER



The world's first 32-bit UNIX implementation was on a Perkin-Elmer machine at Bell Labs by Ritchie/Thompson.

Completely standard Edition VII UNIX  
Rapid response for up to 32 users  
Memory expandable up to 4MB  
Disc capacity greatly expandable

Educational users:  
(must qualify for an Educational Licence from Western Electric)

Hardware  
Model 3210 cpu  
512KB memory  
32MB disc  
8MB/sec throughput  
Dual bus architecture  
2 user ports  
Software  
Edition VII\* UNIX (source)  
Source Code Control System  
Full screen editor  
Word processor  
FORTRAN 77  
PASCAL  
BASIC  
C  
Berkeley enhancements

All this for just  
**£32,000**

For more facts, contact  
Fred Mascarenhas on  
Slough (0753) 34511, or  
complete the coupon.

To: Perkin-Elmer Data Systems Ltd., 227 Bath Road, Slough, Berks SL1 4AX

Name \_\_\_\_\_ Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Telephone No. \_\_\_\_\_ G53

معلومات الحاسوب



## Canadians in £1m Midlands merger

AMBITIOUS Canadian software company Sydney Development has acquired a £1 million stake in UK firm SP Support. The stake, which effectively merges Midlands-based SP Support and Sydney's UK operation in London, was paid for entirely in shares issued by the Canadian company.

According to Tarnie Williams, formerly with IBM, and now Sydney's chief executive, the reason for the merger was the complementary nature of the two companies' products.

Sydney, Williams says, has focused on "vertical markets", but SP has developed what he called "cross-country products in ledgers, inventory management, order entry and a full range of financial applications."

Williams says that the combination of skills will yield far greater potential than either organisation could realise on its own. SP is hoping to use the Sydney connection to get into export markets, particularly in the US and Canada where Sydney has a string of offices.

According to Mike Collins, one of SP's founders, "The company had gone as far as it could with minimal marketing effort and no serious effort to penetrate export markets."

SP employs about 70 people and the merger fits in with Sydney's long-term strategy which is based on growth by merger, using the energetic and ambitious fund-raising techniques Williams has pioneered in Canada.

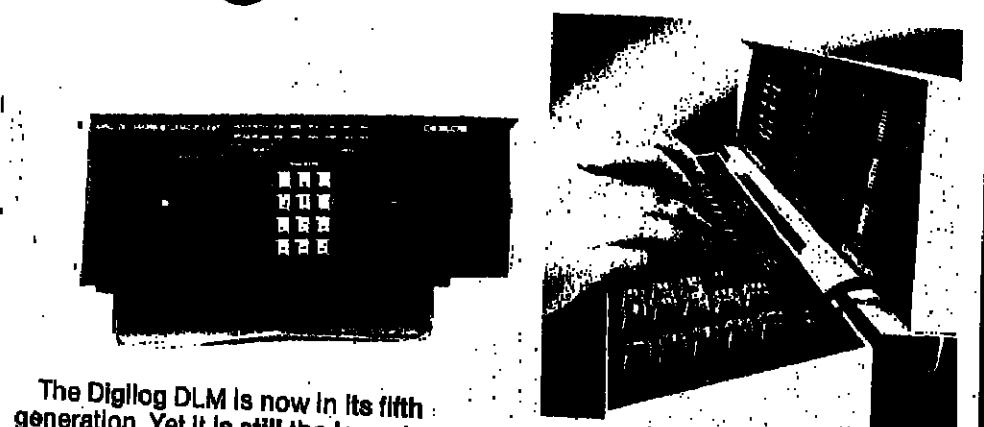
Sydney Development was founded in 1978 by Williams and had turnover of \$4.8 million last year, a 750% rise on the previous year. Williams is forecasting an increase in turnover to \$9 million this year, based on the worldwide expansion of the company.

Although Sydney has a primarily financial orientation, the company has produced a number of software products which have proved popular both here and in North America.

These include Connect II, a family of packages that provide an improved interface with IBM project management systems like PROJACS and PMSIV. The original packages are now complemented by Sydney's own project management System Contract for IBM users and Track 50 for Prime users.

Company News is compiled by Kevin Cahill.

## See how the family has grown!



The Digilog DLM is now in its fifth generation. Yet it is still the lowest-priced data line monitor/analyser with anything like its performance.

The DLM V features a completely new addition to the family - a full travel, fold-down ASCII keyboard, providing 15 different program instructions, as well as direct entry of all protocol control characters and a host of other functions, including a X.25 facility.

Adding further to the DLM V's already powerful capabilities is its sister product, the MSU IV - the latest in a line of dual-drive mini floppy diskette mass storage units.

To get the facts on this remarkable family, use the coupon, or the telephone.

**codex**  
WE'LL GET YOU THROUGH

Codex (UK) Limited is a subsidiary of  
**MOTOROLA LTD.**  
To Tony Jones, Codex (UK) Limited, FREEPOST, THORNTON HEATH, Surrey CR4 9AT. Telephone 01-889 2101.

Full details on the DLM V family, please.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
Tel \_\_\_\_\_

## City impressed by turnabout in ICL's results

ICL's half-year results have evoked favourable comments in the City, where the company has recently raised a great deal of money.

The worst of ICL's financial problems seem to be over, now it has declared an after-tax profit of £12.5 million for the first half of 1982/83, following a profitable second half in 1981/82. Based on a trading profit of £22.3 million on turnover of £401 million, this is a reversal of the 1981/82 first-half results, when the company made a £13 million loss.

Turnover was 11% up on the £335 million of the same period in 1981/82, after deducting £13 million due to favourable currency movement and £17 million from the accounts of Computer Leasing, which ICL acquired last year.

Neil Barton, computer industry analyst at stockbrokers Henry Cooke Lumsden, says the results are "very encouraging", and that growth of sales in the distributed systems area, which accounted for nearly 30% of turnover, shows that concentration in that area is paying off.

Barton says that the willingness of ICL's chairman, Sir Christopher Laidlaw, to express his hopes for the second half of the year (he commented cautiously that the results would be "credible"), is a good sign. Barton still forecasts profits for the year of £50 million.

According to Laidlaw, the networked product line, which is the centrepiece of the company's

strategy for the future, is progressing satisfactorily. ICL's determination to stick to its long-term plan has persuaded Ray Bowden, senior research analyst at stockbrokers Fielding Newson Smith, to stick firmly to the buy recommendation he made recently on ICL shares.

Bowden says he feels confident about ICL's future now that it is well established on its strategic course. Bowden originally forecast profit for the year at £50 million; he now suggests £45-50 million, because of fears that sterling will strengthen against the dollar.

Speculation in the US is that, if the Conservatives win the election, sterling could go as high as \$2.00, and this could harm ICL, because it depends on dollar income from its US operation.

The computer industry analyst Michael Bean at brokers Henderson Crosthwaite has also cut his forecast for the full year back from £50 million to £45 million for the same reason.

Nick Mesham, computer industry analyst at stockbrokers Laurie Milbank, also says that he is very encouraged. He describes ICL as having been briefly "rescued, rationalised and returned to profit".

Can ICL keep it up? Mesham answers with an emphatic "yes", but says there will be a fight.

He describes ICL's financial situation as "sound". The fund-raising is complete and a sound marketing and product strategy is in place, he says. He also notes that

overall impression from the Hambrecht and Quist financing conference held in San Francisco two weeks ago was that US companies operating in the networked area are having an unprecedented success. This, Mesham says, amounts to a strong endorsement of the overall strategy of ICL's managing director Robb Wilmot.

In terms of debt, ICL is now in a better position than it was before the collapse. Borrowings are down to £59 million, from £180 million last September. The £20 million of cumulative preference shares issued by the banks to help ICL's balance sheet during the rescue has been paid back and Laidlaw reported that the £7.4 million in interest on the preference shares had been paid on April 5.

**LAIDLAW... Cautiously optimistic.**



LAIDLAW... Cautiously optimistic.

## Slowdown in exports hits Toshiba

TOSHIBA, one of Japan's most aggressive electronics companies which is beginning to enter world markets in both semiconductors and microcomputers, reported a slight profit slide last year.

For the year ended March 31, the company's consolidated profit was \$197.3 million, 2.4% down on the previous year's \$202 million.

Toshiba blamed a slowdown in exports of heavy equipment, while noting that sales of electronic goods by the company rose 13% during the year.

## Mitsubishi record

MITSUBISHI Electric, soon expected to be one of Japan's leading producers of 256K chips, has announced record sales and profits. Despite a slowdown in the sale of heavy goods due to the recession, the company declared profits of \$214 million, a 5.6% increase on last year.

## \$5bn fine threat

AT&T, struggling with the biggest divestiture in US corporate history, has told a US judge that part of the unscrambling will cost it over \$4.7 billion in capital for injection into its new subsidiary American Bell. The company is also threatened with a \$5bn fine for past activities, which it says should be levied among the hived-off subsidiaries, if the fine is enforced.

## Xerox flat profits

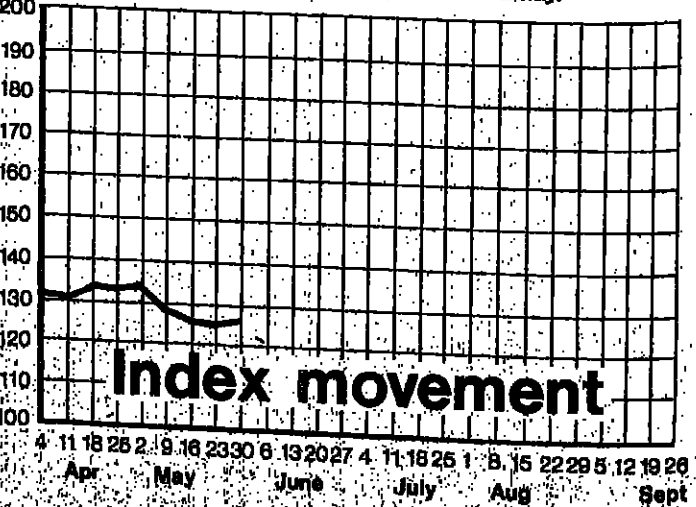
XEROX, once the darling of the US stock market, is forecasting flat profits this year, but an improvement in 1984. Last year the company had a 29% drop in profits, from \$598.2 million in 1981 to \$423.7 million.

## SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 24/6/83 Index 128.44 Change +1.5				Date 24/6/83 Index 128.44 Change +1.5			
London Stock Exchange				US Stock			
Price	Stock	Price	Change	Price	Stock	Price	Change
High	Low	High	Low	High	Low	High	Low
220	218	220	218	220	218	220	218
180	178	180	178	180	178	180	178
160	158	160	158	160	158	160	158
140	138	140	138	140	138	140	138
120	118	120	118	120	118	120	118
100	98	100	98	100	98	100	98
80	78	80	78	80	78	80	78
60	58	60	58	60	58	60	58
40	38	40	38	40	38	40	38
20	18	20	18	20	18	20	18
10	8	10	8	10	8	10	8
5	4	5	4	5	4	5	4
2	1	2	1	2	1	2	1
1	0	1	0	1	0	1	0
0	0	0	0	0	0	0	0

The table shows the closing prices on Monday 23/5/83. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



The one and only R.

Cullinet's relational database for IBM computers.

It's called IDMS/R.

IDMS/R is the single solution to the two sided problem of providing useful database applications for both end users and production tasks.

This is how it works:

As a true relational database, it allows you to select data from separate and unrelated files; join it, then project it in ways that make it possible for you to handle end user applications and unstructured requests for information quickly, directly and intelligently.

As a superset of Cullinet's proven network database, IDMS/R allows you to handle high volume, production applications with the network technology best suited for the job. It's this unique marriage of architectures that makes Cullinet's relational database stand apart.

Where others have tried to propose relational or psuedo-relational components that exist separately from the

production database, Cullinet's is the only one that lets both work together. Thus serving the whole corporation by serving all of the needs within it.

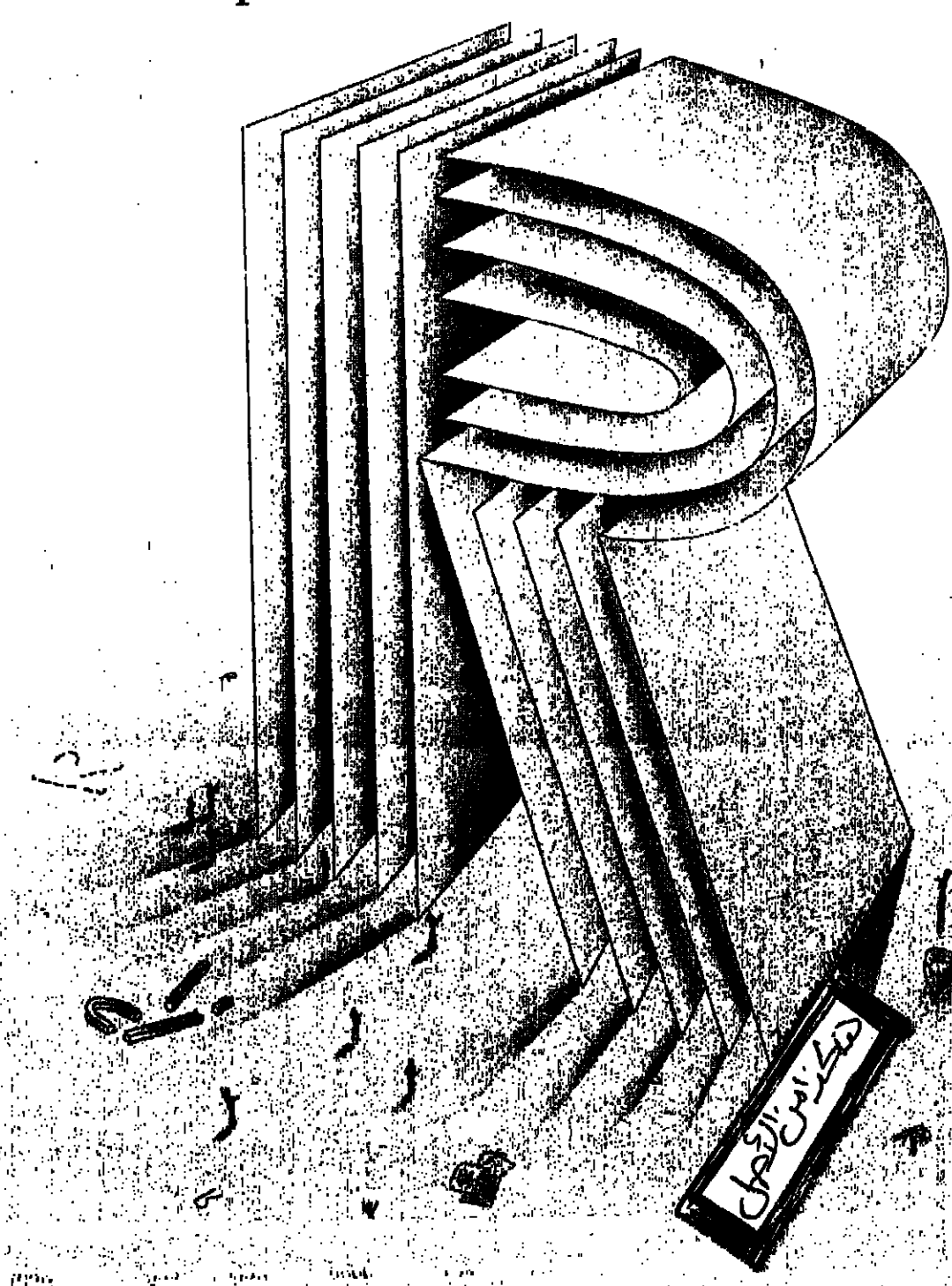
IDMS/R.

To get everything out of the database that you've put into it, the answer is software.

And software is

Cullinet.

Cullinet



Cullinet Software Ltd., Cullinet House, The Broadway, Stanmore, Middlesex HA7 4DD. Telephone 01-864 7333 Telex: 8861901.



## PLATFORM

Martin Maynard is managing director of Androgenic.

## Time for the home computer manufacturers to wake up to software

IT is time home computer manufacturers started to appreciate the overriding importance of independent software companies.

It took the business computer market several years to realise that it was the software that sold their machines, yet the home computer companies have chosen to ignore such obvious facts.

A home computer is of absolutely no use without software. Games, even the first generation "Space Invaders" were the sole reason why sales of home machines took off, and games are still the major excuse for buying a home computer.

More recently, games have been superseded to some extent by home utilities and business programs. Existing home computer users are adding to their software library and extending the use



of encouraging development and marketing; instead of co-operating by giving details of new releases, manufacturers are going out of their way to make life as difficult as possible for software houses.

Most manufacturers have adopted some form of "approved product" endorsement. In practical terms this means that the manufacturer is entitled to a percentage of the sales on each approved product in return for inclusion in a catalogue; minimal advertising support and very little else.

Given that the market life of home computer software is measurable in months (due to the constant development within the industry), and given that a good product can sell hundreds of thousands of copies worldwide, even 5% of the sales income amounts to potentially thousands of pounds

Instead of appreciating the efforts of the software houses; instead of encouraging development and marketing; instead of co-operating by giving details of new releases, manufacturers are going out of their way to make life as difficult as possible for software houses.

of their machines. However, this generation of software is also creating a vast new marketplace for the machines.

If nothing else, the home user now has justification for buying a computer; the business and commercial user now has access to an extremely low-cost business automation system.

It is the availability and popularity of the software that dictates the success or failure of a home computer. If software manufacturers decide not to support a new machine, what chance has that machine in the market?

To take just one example: the main reason why the Commodore Vic has been so successful (there are now 50,000 of them in the UK alone), is because immediately the machine was launched, companies began both to downgrade proven Pet programs and to develop specific programs.

Both cost a great deal of money. Both are profitable if initial funding can be assured.

How many home computer manufacturers have invested in a software house development project from the start? The risks are all on the side of the software house.

It is only once a program has been developed and is shown to be commercially successful that the home computer manufacturer shows an interest in acquiring at least part of the product.

Instead of appreciating the efforts of software houses; instead

## SPECIAL REVIEW

# Scourge of America's scientific conscience

THE professor of computer science at Stanford University, Ed Feigenbaum, is rapidly becoming the scourge of America's scientific conscience as he berates the country for its lack of interest in the next generation of computers.

He mounts his criticism with elegance, passion and a certain amount of sideways humour in his latest book, *The Fifth Generation*,\* just published by Addison Wesley in the US.

But he does not restrict his criticism to the US alone. In a chapter headed "There Always was an England," he recounts

by Kevin Cahill

how, almost as usual, the UK got there first with what he sees to be the key to Japan's plans to lead the world in the next generation of computer systems.

As Feigenbaum sees it, the most important aspect of the Japanese project to build the computers of the future is artificial intelligence, and he credits Alan Turing with the first perception that computers might be capable of intelligent thought.

Turing's concepts, far ahead of their time as was much of his work, were framed in the paper "Intelligent Machinery" which he produced during a one-year sabbatical from Cambridge in 1947.

Turing followed the first paper with an even more important one called "Computing Machinery and Intelligence," which included the now famous Turing Test.

For those who have forgotten it, the Turing test says that if, in remote dialogue by teletype with two sources, a human operator cannot tell which is the machine and which is the human, the machine can be said to exhibit intelligence.

From that auspicious beginning over a very short period.

Any serious software house will already have invested in marketing, promotion and distribution to ensure the success of the product. Advertisements, point of sale material, editorial coverage and product reviews alone adequately promote the product. Of what use is the minute promotion gained from the manufacturer?

In order to run the software, the buyer must have a computer. If the software is of sufficient interest, the potential user will purchase a machine on which to run it. Are software houses therefore entitled to expect a percentage of the sale?

Why can't software houses start their own "approved hardware" scheme whereby the manufacturers, if considered responsible enough to justify the development of software for their machines, forfeit a percentage of their income? This income could accumulate, being used to promote complete systems to the market.

Further, it could aid the funding of systems in education, etc. This approach would benefit all concerned.

Some hardware manufacturers have been promoting their home computers on the basis of the software alone. This software is provided by independent companies.

Which of the two more creates a market for the sales of home computers?

Martin Maynard



FEIGENBAUM... "Nothing for a middle class shopkeeper to get into".

the next two decades saw a flowering of AI thought, mostly at Edinburgh under Donald Michie.

In 1973, however, the Science Research Council issued a report written by Sir James Lighthill, which purported to "evaluate" artificial intelligence.

According to Lighthill, the work called AI was sadly wanting at best, and bordering on charlatanism at worst. The outcome of the Lighthill report, which appeared just as one of the less well known but most successful AI projects of all was getting under way in the General Infirmary in Leeds under

Dr Tim de Dombal, was that the team was dismantled and its members scattered.

At the time this happened Michie's staff were deeply into robotics and it is worth quoting Feigenbaum in full:

"As a consequence of the Lighthill report, artificial intelligence sustained a body blow in Great Britain and in Australia as well. The superb robotics project at Edinburgh was largely dismantled and many of its young and able researchers scattered... Since robotics is about to play a significant role in Japan's soaring

productivity advances, Lighthill report was a costly one to a man whose industrial productivity is grim joke."

Feigenbaum, who wrote a book before the Avey report, finally accepted by the government, and funds from the DoI, DES and MoD budget are available for it, describes the action of the team the UK was the fifth generation conference; Japan in 1982 as one of "game alarm."

He also notes, with some asides, that the team the UK did not include two of the most renowned international AI pioneers, Donald Michie and A. D'Agapayeff.

Feigenbaum's conclusions about the UK chances in the fifth generation age are best summed up in "Government support for research and development in the UK is not only slight, and what little is has gone disproportionately to physics, probably because physicists traditionally dominate the committees that control the British government allocation of funds. Physics can be considered the pi of science - a glorious game nothing for a middle class shopkeeper to get into. Nevertheless Britain has stubbornly kept appearances, buying polo ponies when the family car was broken down, and Mum new uppers. It is sad fact that people with these funds must make choices and Britain's haven't always been wise."

Strong stuff indeed - and directed at both the UK, in Europe in a book which goes long way to explain just why Japanese fifth generation project so important, and what it is.

*The Fifth Generation*. Ed Feigenbaum, Addison, Wesley. \$15.50.

THE UK holds the trump card in one area of information technology: software expertise. Or does it?

Last week the news came that two large US software companies, Management Science America and Pansophic, are planning to sell Japanese products.

It is not the first time the Japanese have tried to export their software to the West. At the end of 1981 it was reported that Hitachi was going to distribute its system software in the US through a distribution agreement with New Jersey-based Syncsort. Not much has been heard of that deal since, though it is generally agreed that the Japanese are weak in application software, which is where the real money lies.

A report published about the same time as the Hitachi-Syncsort link-up by the International Data Corp (IDC), a research group, suggested that the Japanese were capable of resolving their software deficiencies by the mid-1980s. That MSA and Pansophic hope to market Japanese software in the UK and the US by next year is a sign that the IDC prediction may hold true.

The arrival of Japanese application packages in the West should not in itself send UK software companies scuttling to the trenches. Neither MSA nor Pansophic went to Japan to look for software they couldn't get elsewhere. A deal with the Japanese marketing company Asishuto is a natural by-product of the arrangement MSA and Pansophic already had with this firm to distribute their software in Japan.

But, if Japan is ready to produce application software for export, there is no room for complacency.

The UK certainly holds the lead in software expertise, but only if it translates its excellence in research into marketable products. Edward Feigenbaum, professor of computer science at Stanford University, says in a book reviewed on the facing page that the UK has seldom capitalised on many of its innovative ideas. His book, *The Fifth Generation*, is well worth quoting:

"... Britain has stubbornly kept up appearances, buying polo ponies when the family car was broken down, the shop needed new inventory, and Mum new uppers. It is a sad fact that people with limited funds must make choices and Britain's haven't always been wise."

THE birth of a new mainframe series, like the birth of a new planet, is an occasion for some rejoicing.

After all, the computer industry only recently discovered that small is beautiful, having spent most of its 30 years of turbulent existence wrapped up in the myth, some would even say the magic, of the mainframe.

The birth we refer to is the new Trilogy machine, which is coming down from the stable which gave the industry the IBM 360, the Amdahl Corp 470 and which was a profound influence on at least two major Japanese mainframe ranges, those from Fujitsu and Hitachi.

The Trilogy machine, which will be defined in detail and announced early next year, will be little bigger than the average family wardrobe, and even with its cooling unit, will fit in the back of an average 1.5-ton truck.

Contrast this new machine with the first Atlas from Ferranti. In its time, 1963, it was the world's largest and most powerful computer. The Atlas had 48K of main memory, ran at 1 mips and it took 19 furniture vans to move it to the Nuclear Research Institute at Harwell, where it took two months to install and cost £3 million.

The equivalent cost of the Atlas 1 in today's money is £20 million.

What the Trilogy machine shows is that the industry's best are still driving up the mips, driving down the price in real terms and proving clearly that in terms of size reduction no one has yet spotted the final horizon of miniaturisation.

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

## ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 SAS

Thursday, June 2, 1983

## Japanese jolt for UK software

THE UK holds the trump card in one area of information technology: software expertise. Or does it?

Last week the news came that two large US software companies, Management Science America and Pansophic, are planning to sell Japanese products.

It is not the first time the Japanese have tried to export their software to the West. At the end of 1981 it was reported that Hitachi was going to distribute its system software in the US through a distribution agreement with New Jersey-based Syncsort. Not much has been heard of that deal since, though it is generally agreed that the Japanese are weak in application software, which is where the real money lies.

A report published about the same time as the Hitachi-Syncsort link-up by the International Data Corp (IDC), a research group, suggested that the Japanese were capable of resolving their software deficiencies by the mid-1980s. That MSA and Pansophic hope to market Japanese software in the UK and the US by next year is a sign that the IDC prediction may hold true.

The arrival of Japanese application packages in the West should not in itself send UK software companies scuttling to the trenches. Neither MSA nor Pansophic went to Japan to look for software they couldn't get elsewhere. A deal with the Japanese marketing company Asishuto is a natural by-product of the arrangement MSA and Pansophic already had with this firm to distribute their software in Japan.

But, if Japan is ready to produce application software for export, there is no room for complacency.

The UK certainly holds the lead in software expertise, but only if it translates its excellence in research into marketable products. Edward Feigenbaum, professor of computer science at Stanford University, says in a book reviewed on the facing page that the UK has seldom capitalised on many of its innovative ideas. His book, *The Fifth Generation*, is well worth quoting:

"... Britain has stubbornly kept up appearances, buying polo ponies when the family car was broken down, the shop needed new inventory, and Mum new uppers. It is a sad fact that people with limited funds must make choices and Britain's haven't always been wise."

THE birth of a new mainframe series, like the birth of a new planet, is an occasion for some rejoicing.

After all, the computer industry only recently discovered that small is beautiful, having spent most of its 30 years of turbulent existence wrapped up in the myth, some would even say the magic, of the mainframe.

The birth we refer to is the new Trilogy machine, which is coming down from the stable which gave the industry the IBM 360, the Amdahl Corp 470 and which was a profound influence on at least two major Japanese mainframe ranges, those from Fujitsu and Hitachi.

The Trilogy machine, which will be defined in detail and announced early next year, will be little bigger than the average family wardrobe, and even with its cooling unit, will fit in the back of an average 1.5-ton truck.

Contrast this new machine with the first Atlas from Ferranti. In its time, 1963, it was the world's largest and most powerful computer. The Atlas had 48K of main memory, ran at 1 mips and it took 19 furniture vans to move it to the Nuclear Research Institute at Harwell, where it took two months to install and cost £3 million.

The equivalent cost of the Atlas 1 in today's money is £20 million.

What the Trilogy machine shows is that the industry's best are still driving up the mips, driving down the price in real terms and proving clearly that in terms of size reduction no one has yet spotted the final horizon of miniaturisation.

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

## LETTERS

## Disputed conversation 'Unfounded allegation'

I WAS astonished to see the article by John Kavanagh (*Computer Weekly*, May 19) concerning my company, Systems Plus and Vector Graphic. When I was called I naturally acknowledged, when he raised the matter, that Vector had undergone management changes and posted a loss recently.

However, the quote attributed to me certainly does not conform to my recollection of the ensuing conversation, nor could it be further from presenting a true impression of my views.

Systems Plus had enjoyed a long and profitable relationship with Vector and we have consistently found its equipment to be of superior quality. Vector-based systems have been the backbone of

our business and, although we are diversifying into other makes of hardware, we could never have achieved results to make this possible without the Vector systems that Systems Plus have sold to date.

Vector Equipment remains a significant part of our future plans and this week we have been demonstrating the Linc Local Area Network to existing and potential customers.

ROBERT S. BAILES  
Systems Plus Ltd.

After examining his notes on the conversation with Robert Bailes, John Kavanagh stands by the quotes contained in the original story - Editor.

MY letter (*Computer Weekly*, April 21) was provoked by a letter from Target Computer Group which contained a number of allegations.

If the managing director of Target (*Computer Weekly*, May 19) does not want to enter into a discussion he should not initiate the arguments.

IMS did not "fail to turn up" as admitted by Target; their allegation was therefore unfounded. Further, the system overview supplied by Target states that where "an employer operates its own sick pay scheme any sick pay in excess of SSP is not subject to NI or tax". There is no reference to an insured scheme which would be exempt from NI or PAYE.

The overview states that "having calculated the number of qualifying days to which the employee is entitled, his record is checked to determine whether he has sufficient days of entitlement left to cover the period. If there are only sufficient days for part of the period, an exception form SSP1(B) is produced." This is a gross error.

An additional check is to determine whether the employee, with the current PIW included, will have received SSP for more than six weeks in the current financial year. If so, a transfer form

SSP1(C) will be produced and an employee's record flagged to prevent another being issued in the event of any further absences. This is incorrect. If the transfer date is not achieved in the current PIW, then a further transfer form should be issued in the event of any further absence.

Target Computer Group refers to "If the PIW is three days or less no SSP or other benefit is due." PIW is a technical term used in the Social Security and Housing Benefits Act 1982. There can be no PIW of less than four days. The Target system overview states that the system meets all the statutory requirements in full. A signed statement by Target reproduced in a survey by *Persamal Executive* magazine indicates that the system does not enable daily offsetting of SSP and OSP. This is a fundamental requirement of the legislation.

To end the disagreement and to turn the argument into a more fruitful discussion of the optimisation of SSP, we would be very happy to send our Director of Research to review to Target program with their systems designer and publish the results.

M. D. COPELSTON  
Managing director

IMS  
Exeter

## Exclusive distributors

IN an article on the People page (*Computer Weekly*, April 21) on Electrohome Products, a photograph of video data equipment was published. Among those products shown prominently in the foreground was an Electrohome Monochrome Video Projector.

It is possible that these pictures together with the article may have caused some confusion in the minds of your readers.

I should be most grateful if you could clarify that we alone, as exclusive distributors for the UK of the Electrohome family of projector products enjoy the direct support and confidence of Electrohome.

CLIVE D. YOUNG  
Managing director  
Powerhouse Enterprises  
Ringwood, Hants



## SIMPLY MORE SOFTWARE

We felt it was time we stopped telling you about ourselves and said a few words about the massive commitment which over 100 software organisations have made to the ACT Sirius 1.

On this page are just a few of more than 400 packages now available for the ACT Sirius 1. The packages range from traditional accounts programs to sophisticated computer-aided design systems and there is a whole host of software for specific industries and professions.

If you're looking for a computer solution to match your business requirements, then phone one of the numbers above, before you look any further. They're all convinced that the ACT Sirius 1 is the best machine of its kind in the country - and they have the software that will make it work for you. And if you don't see what you want, just clip the coupon for details of more than 400 products designed for the ACT Sirius 1.



ACT (Sirius) Ltd.  
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400.

021 501 2284

## 10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 31, 1973: A merger between CII and the computer divisions of Siemens and Philips was reported to be imminent. ICL presented an experiment in Parliament on computer facilities for MPs. The Department of the Environment ordered six 32-key keyboard systems from Radion for the national car licensing centre at Swansea.

Liveware File

by Dan









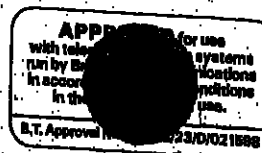
# A winner all along the line: The new MPS 96 9600 bit/s modem.

Racal-Milgo consolidates its leading position in high-speed data communications by introducing a new modem – the MPS96.

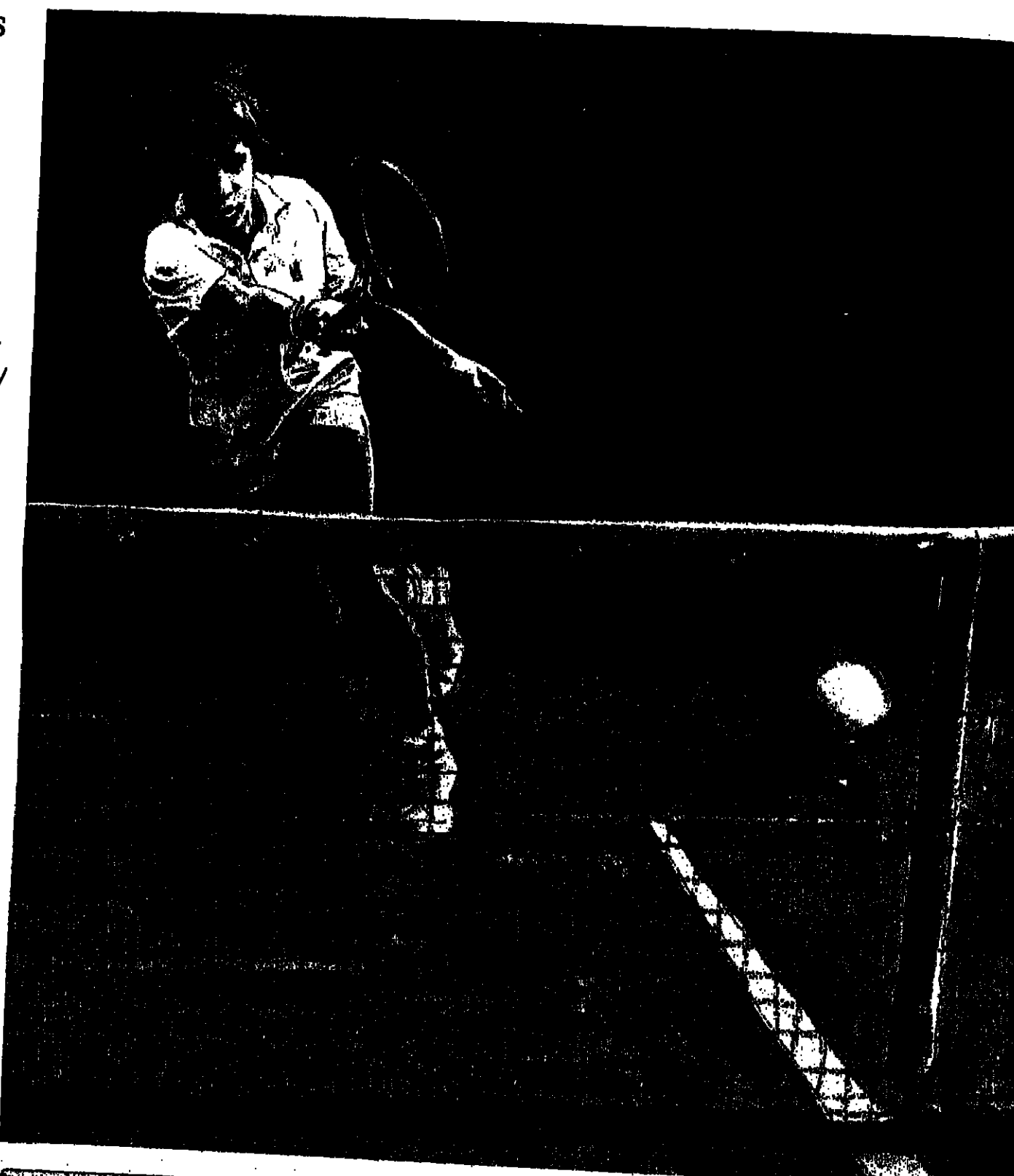
Using powerful, purpose-designed microprocessors, the versatile MPS96 provides high-performance, synchronous, full/half-duplex operation over the speed range 4800 to 9600 bits. And, as you'd expect from Racal-Milgo, it's packed with all the features and facilities you need to suit the precise requirements of your system. Features and facilities such as:

- improved signal/noise ratio – giving enhanced immunity from line 'hits', and better performance on leased and dial-up circuits;
  - 'Fastran' automatic adaptive equalizer, synchronizing in only 30 milliseconds – ensuring maximum data throughput on multidrop polled networks;
  - modem sharing and multiport operation – to maximize efficiency;
  - remote testing, including T7 – for use in conjunction with network management systems.
- There's much more to tell. For full details, contact:

Racal-Milgo Limited,  
Landata House,  
Station Road, Hook,  
Hants RG27 9JF  
Telephone: Hook (025672) 3911  
Telex: 858054



**Racal-Milgo**  
Number 1 in data communications.  
**RACAL**



## NETWORKS

# Making networks more manageable

Planning ahead is the answer, according to Brian Pugh

IT is estimated that by 1987 six million people in Western Europe will be using data communications every day. This will be a sixfold increase over the number today. In the UK the number of network termination points is expected to grow from 117,000 to 377,000.

At company level, installations will be under pressure to expand their services and to provide additional ones, such as private viewdata and personal computing.

But this could create nightmares for operations managers.

Most companies do not manage their networks; they merely respond to crises generated by the failure of one or more components. Lack of design criteria during the early years has created unmanageable networks.

Many still consist of a central CPU, supported by a mixture of batch and interactive terminals at remote sites. The number of terminals, small at first, has grown with increasing rapidity. Thus, there was a time lag before it was realised that a situation existed that required managing. By then it was too late.

The fashionable solutions to the problem are to introduce line monitoring aids; create a user help desk and appoint a network controller. But this merely conceals deficiencies caused by lack of experience.

Line monitoring aids have limited value; the user help desk is often a public relations exercise to

consideration in the design of a system is the user's needs. After this, the level of service needed and the amount the user is prepared to pay will determine the shape and size of each of the three sub-systems. These two factors must be emphasised to ensure the user understands what can be expected from the system.

The network sub-system is the most fragile and primitive part of the whole and, when it is critical, attempts must be made to reduce user dependence on it. It is hoped the introduction of digital exchanges, combined with fibre-optic cables, will improve the quality and reliability of data transmission circuits.

Unfortunately the tariffs for Switch Stream One, the first of British Telecom's X-Stream digital services to be available, are not likely to cause a stampede for its use. And a lot of communications software now in use is not X25 compatible.

Generally the most critical systems are interactive, not necessarily because of their importance to the business but because of their immediacy. Clerical staff working nine to five will not accept delays in response or communication failures.

The only way to insulate users from the risks inherent in networking is to locate time-critical data at the point of use. By distributing this part of the processing the user may get a better response time and should certainly achieve a higher uptime.

The factors influencing this are the superior interactive performance of minis and micros, which are not so good with batch, and the development of local area networks. LANs permit a method of resource-sharing that cuts the cost of remote processing, though sometimes this brings a trade-off in performance.

Personal computing should be performed away from the mainframe, and micros used for this purpose should have the facility to access the central computer only for information retrieval. There should be no updates or file creates, thus preserving the integrity of centrally stored data and disc space management.

Word processing is more effective when carried out on dedicated machines, with hardware and software tailored to the specific needs of this application.

Thus the mainframe is left free to do the job it is most suited for – batch-processing and storage of large amounts of data. For remote sites, where local files cannot be justified, low-volume multi-user TP can be supported without any noticeable degradation.

Most batch jobs, even time-critical ones, have some leeway built into them, so communication failures are tolerated more by remote batch terminal operators than those with VDUs.

If it is to be comprehensive, a private viewdata system needs a central processor. Centralisation of batch, limited transaction processing, and the use of videotex and systems development are good reasons for having the central processors spread the load and provide back-up for each other.

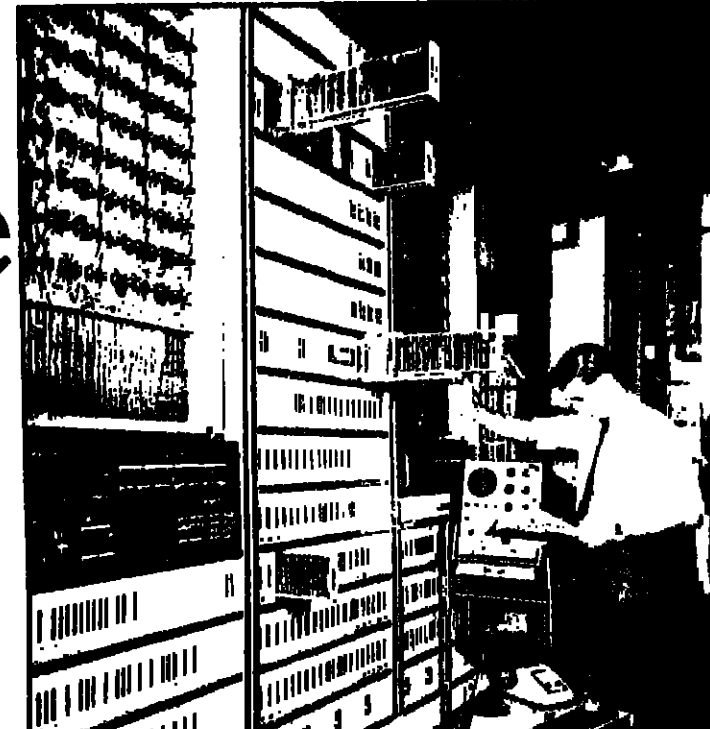
Subminute facsimile digital transmitters will be more widely used (they can transmit an A4 do-

cument at 9,600 bits per second in 30 seconds.) These transmitters, possibly with teletex between communicating word processors, will certainly be sharing future networks with traditional computer data.

The volume and diversity of traffic will increase the importance of maintaining a high uptime on the network sub-system. Duplicate private lines following completely separate routes from the A end to the B end are a good insurance, as is the rapid availability of spare modems.

Dial up facilities must be able to cope with demand at peak periods. Patching and re-routing of lines must be swift and easy.

Despite their limitations, diagnostic and problem determination aids can be useful but the user still



Fault-finding on the central installation need not stop operations.

suffers if problem correction is lengthy. The aim must be to avoid or minimise the problem in the first place by thoughtful planning. When this fails then the problem should be bypassed so that correc-

tion does not inconvenience the user.

Software, particularly the operating system, should be given the same kind of reappraisal as hardware. Operating systems

supplied as a sealed package seem to be more robust than those comprising selectable options with installation maintenance.

Finally there should be a constantly updated database of the whole system, giving details of the equipment by make, type and location. Operational and failure data should be recorded so that, periodically, statistics can be produced to highlight unsatisfactory performance for management action.

To make the scheme workable there should be a communications policy, so that, when each element of a sub-system falls due for replacement, changes can be made to implement the policy by degrees.

While operations should have executive authority for the management of the processor and network sub-systems, it is not practical to extend this to the terminals. Because of the user-friendly concept, most of intelligent terminal equipment is sold on the basis that specialist DP staff are not needed. As a result essential disciplines of operations and data security are often ignored.

Managers with responsibility for networks must, therefore, play the role of auditor, with the authority to visit, investigate and report on the way remote sites are supervised. This is the only way in which the integrity of the terminal sub-system can be guaranteed.

# How long can you justify using second best?

The latest  
independent user  
survey\* on Database  
Management Systems  
puts TOTAL at the top of  
the table in every  
category.

## DBMS Ratings

Users were asked to rate their DBMSs on a scale from 0 (poor) to 5 (excellent). Average results are given in Table 16 for IMS, DL/I, and TOTAL (responses for ADABAS and IDMS were insufficient to give a meaningful aggregate score).

Cincom Systems Limited,  
Jackie Duncan  
Marketing Services  
Strives House, Maidenhead  
Berkshire, SL6 1CS.  
Tel: Maidenhead (0628) 72781.

Table 16: User ratings of DBMS's

	Average	IMS	DL/I	TOTAL	ALL IBM DBMS's	ALL non-IBM DBMS's
Supplier support: initial	3.26	3.44	2.89	3.80	3.17	3.44
Supplier support: ongoing	3.18	3.30	3.00	3.50	3.16	3.22
Quality of code	3.58	3.60	3.32	4.33	3.33	4.12
Facilities offered to:						
programmer	3.07	3.40	2.50	3.47	3.00	3.22
analyst/designer	2.52	2.40	2.30	3.00	2.35	2.89
systems programmer	2.59	3.00	1.89	3.17	2.47	2.87
database administrator	2.75	2.90	2.22	3.47	2.58	3.11
operators/troubleshooters	2.35	2.70	1.62	3.00	2.22	2.62
Documentation	3.07	3.10	2.67	3.33	2.89	3.44
Ease of installation	3.04	2.70	3.33	4.47	3.00	3.12
Overall satisfaction	3.36	3.60	3.00	3.83	3.32	3.44

\*Xephon User Survey - Database in Practice

**Cincom Systems**  
Your strategic software partner.



# TEST DRIVE THE IBM SYSTEM/36 AT THE IBM SPRING MARKET.

It was announced a few days ago and you have the opportunity to try it for yourself by coming along to the IBM Spring Market in Belfast, Birmingham, Bristol, Edinburgh, Leeds, London, Manchester and Nottingham.

This brand new system joins the famous family of best-selling IBM small systems - now comprising IBM System/34, IBM System/36 and IBM System/38. Another bright idea from IBM.

**IBM**

**65**

65th bright idea from IBM:  
**DEAR INTERNATIONAL BANKER.**  
Give yourself an edge in multicurrency dealing and leading for a modest investment in computing. Come to the IBM Spring Market and find out how.

**55**

55th bright idea from IBM:  
**DEAR DISTRIBUTION MANAGER.**  
Deliver the right product to the right place at the right time. Write a complete delivery schedule for your drivers, all the packing notes for your warehousemen, and complete delivery notes for your customers. Come to the IBM Spring Market and find out how.

**27**

27th bright idea from IBM:  
**DEAR TRANSPORT MANAGER.**  
Roll out a schedule of cost per vehicle over the last few years, to make sure you're spending the right amount on transport. Come to the IBM Spring Market and find out how.

**47**

47th bright idea from IBM:  
**DEAR TRAVEL AGENT.**  
What do you really need on these holiday reservations, booked, cancelled, rebooked, changed, and what time you? The answer can come from the same computer that runs the IBM Spring Market. Come to the IBM Spring Market and find out how.

**11**

11th bright idea from IBM:  
**DEAR HOTEL MANAGER.**  
Keep a keen eye on all your departments while letting the individual managers feel more responsible for their affairs. Come to the IBM Spring Market and find out how.

**25**

25th bright idea from IBM:  
**DEAR MANAGER.**  
Discover how to cut your costs by using IBM's new system to manage your business. Send him to the IBM Spring Market and find out how.

**51**

51st bright idea from IBM:  
**DEAR MANAGER.**  
Give your staff a better way to use their time by using IBM's new system to manage their business. Send him to the IBM Spring Market and find out how.

If you'd like to have some more information please fill in the coupon or attach your business card. Then send it to:

NAME \_\_\_\_\_ Amanda Tilley  
POSITION \_\_\_\_\_ IBM United Kingdom Limited  
COMPANY NAME \_\_\_\_\_ IBM United Kingdom Limited  
ADDRESS \_\_\_\_\_ IBM United Kingdom Limited  
POST CODE \_\_\_\_\_ TW9 1BR  
TELEPHONE \_\_\_\_\_ (Tel.: 01-940 5656)

## OFFICE AUTOMATION

# Turning benefits of technology into profits

David Firnberg looks at some of the advantages of office automation

ACCORDING to a recent survey among business users of microcomputers the most important benefits sought were the hardest to quantify in cash terms. According to another survey - of companies without any present commitment to office automation - 25% were not convinced of the benefits, 25% said that office automation equipment was too expensive, and 33% said that typewriters were perfectly adequate for their needs.

Most companies are still reluctant to invest in office automation on a grand scale. Where, company directors want to know, is the payoff?

Yet information technology or office automation can provide substantial cash benefits. Typical productivity gains quoted by users are 15 to 35% for secretaries and 5 to 25% for managers and professional staff.

The problems of justifying an investment in office automation by cost-benefit analysis are well-known, but properly used it can be an accurate guide to decision-making. Benefits are: cost savings, cost avoidance and qualitative intangible benefits.

It is easy to give a monetary value to cost savings and cost avoidance. But intangible benefits are difficult, though not impossible, to value. Thus it may be difficult, for example, to value improved staff morale, but easier to estimate the value of a resulting reduction in staff turnover.

Investment in office automation is no different from any other commercial investment and should yield a similar return for an equivalent risk. Of all the justifications advanced for investing in office automation the most common, and the most misunderstood, is increased productivity.

## Rising costs of the office

THE cost of administration in UK companies is too high, whether compared with international competitors or as a proportion of total costs.

About a third of the UK's 23 million workers is employed in administrative or information jobs. And the number is increasing in relation to the total workforce. In UK manufacturing industries about 28% of workers are administrative or clerical staff. In banks, the figure is 70% and in the Civil Service, 80%.

Labour costs are the largest proportion of total office costs. A US survey in 1974 found that labour costs were 84% of total office costs. Advances in productivity in manufacturing are being swallowed up by low productivity in office work and services.

Administrative staff are expensive. Salaries range from £5,000 a year for secretaries to £10-£15,000 a year for most professionals and managers, to which must be added fringe benefits, which are sometimes almost a third of a salary.

Skilled administrative and support staff are also in short supply. Even in times of high unemployment there are often severe shortages in particular sectors or geographic areas. The figure of 25,000 vacancies for office staff in London alone is often quoted. The Alfred Marks Bureau has estimated that in London there are six jobs for every skilled secretary or typist available.

An office worker may handle 16,000 pieces of paper a year, and control a file of 20,000 pages.

added to the file, and 3,000 removed. £350 a year may be spent on printing, stationery, other office requisites and small office machines for each person.

The cost of producing 15 copies of a 30-page report, for example, is £8.50 for material and machine rental and between £8 and £10 for staff time on printing and collating. In other words, each copy of the report costs more than £1. An IBM study has estimated that for each original document produced in the office, six copies are made.

Yet another area of concern is the rising cost and decreasing quality of mail services. The cost of first-class post has risen by 250% since 1975; from 4/6p to 18p. But there are other costs associated with post to be considered - direct (the cost of paper, envelopes



Wordplex word processors in use in offices of the Northern Rock Building Society.

An approach to increased productivity that focuses on the electronic office, the paperless office, the peopleless office is irrelevant, just as any approach that does not focus on the business needs of an organisation is irrelevant. Business efficiency will not be improved by solutions in search of problems.

Approaches that are irrelevant give rise to meaningless measures of performance, such as the number of keystrokes per minute. The only meaningful measures of performance are those which are

real in business terms and influence the bottom line of the profit and loss account.

Corporate decision-making productivity is difficult to measure, as it depends on the profits in a particular environment over a period of time. The value of improved information to the quality of managerial decisions is generally assessed subjectively.

Product productivity is best measured as the ratio of revenue to the cost of making a product. Such measures, however, are rarely straightforward. Several functional

departments may contribute to making a product, but fair transfer pricing is difficult. It may be more appropriate to use pragmatic measures of the factors influencing cost and revenue.

Functional productivity is the ratio of output to cost of resources used. The unit of output depends on the business function. Without revenue, functional productivity is only a measure of unit costs and relates only indirectly to profits.

Task productivity is easy to measure: the number of pages typed per typist per day, for

example. However, it is at such a low level that it is unlikely to have much effect on profits.

Tool productivity is even easier to measure and is generally provided by equipment suppliers. Most suppliers have their own measures, which are rarely comparable.

Improved productivity can be translated into profits by reducing costs, avoiding cost or increasing the value of the product. But functional or job reorganisation is often needed before identified benefits are converted into profits.

## Word processing saved £20,000 a year in pay

ALMOST all companies that implement office automation pilot studies report savings in the cost of staff, and pay-back periods of one to two years.

Word processing is often seen as a first stage in office automation. Recent studies by Bony indicate the range of cost savings and other benefits that can be achieved. In one modest word processing scheme, net savings of £20,000 a year are reported for a capital cost of £8,000.

A larger shared-logic word processing system brought about savings of £40,000 a year through reductions in staff and external costs, for a capital outlay of £40,000 and annual costs of £18,000.

In another example - a word processor with limited computing capabilities for export documentation - a capital cost of £8,000 brought about savings of £20,000 a year on staff salaries, £5,000 a year on work previously previously contracted out, and a range of intangible benefits, including: documents available more quickly; amendments carried out speedily; a reduction in errors; a reduction in the need for checking; fewer

discrepancies; and the ability to adopt internationally recognised standards.

A dramatic example of cost saving resulted from the application of word processing and microfilm to legal records. For a capital cost of £26,000, net savings of £130,000 a year are reported. It was possible to reduce staff; reduce office accommodation; reduce the time taken to update records; reduce search time; improve the durability of records; improve job satisfaction and interest; and dispose of all the original documents.

Improving secretarial productivity by introducing better tools such as word processors is not an end in itself. The aim is to improve managerial productivity by providing better support.

Office automation can provide four main value-added benefits: increased information accessibility; increased people accessibility; increased control over personal activities; and increased individual contributions.

With increased information accessibility users can define their needs more clearly and search for information more quickly and

cheaply. The information can be more up-to-date and accurate; and personal, corporate and public information can be more readily accessible.

Electronic mail and messaging can provide greater people accessibility. A message can be sent when the user likes, without any need for the recipient to be available. An incoming message is stored in a mailbox until the recipient is ready to read it. Usually a message is read the same day, and the time-span from sending a message to receiving a reply can be reduced from days or weeks to hours. According to one user, the system "definitely speeded up the metabolism of the company".

When working in an office, a user can deal with requests for information at once. There is, therefore, a significant reduction in interruptions and a resultant improvement in work quantity and quality. Outside the office such systems are usually accessible from various types of terminal, including telex and viewdata.

Experience of users indicates that teleconferencing facilities have long promised a reduction in the need to travel to meetings.

## Forcing down price of equipment

OFFICE automation is an increasingly competitive business. The falling price of raw hardware and competition among suppliers is forcing down equipment costs. There has been a 20% a year decrease in price per unit of performance of computer processors over the last 10 years and the cost of peripherals - printers and storage devices - has dropped at 12% a year for greatly enhanced capability.

The cost of a complete small computer system, including a printer and storage, is falling at 35% a year. Such systems are now readily available for £2,000 to £3,000. No organisation can afford to ignore these trends. Experiences of users emphasise the value of pilot studies - small projects that can be used as stepping stones to office automation. Firms need a basic familiarity with office automation to gain confidence and to find out how automation is best applied.

Applications and opportunities for benefit will move readily become evident with experience. Moreover, familiarity with office automation equipment and knowledge of its potential will remove obstacles to its introduction. Could firms manage in the future without office automation? They could, but it would be a poorer future.



# MARKET PLACE

CONTACT XENIA WHITE—FOR ADVERTISING RATES **TELEPHONE: 01-661 8671**

## SK Computer

### VAX\*-11/730 Systems AVAILABLE FROM STOCK!

VAX\* is a trademark of Digital Equipment Co. Limited

SK Computer Systems Limited, St. Michael's House, Norton Way South, Litchworth, Herts SG8 1PB. Tel: (04626) 78331. Tk: 825647 SKSYS G.

**CALL SYSTEK NOW**  
**01-349 2911**

**CIT 80**  
**CIT 101** } **EX STOCK**

**VT 100**  
**VT 101** } **CIT 101 compatible**  
**VT 102**

DEC V110, V101, V102 are registered trademarks of Digital Equipment Co. Ltd.

**MATRIX PRINTERS 30-400 CPS DRAFT AND CORRES. QUALITY GRAPHICS IN COLOUR. LETTER QUALITY 15/60CPS.**

**WHY SETTLE FOR LESS WHEN YOU CAN HAVE THE BEST?**

**SYSTEK**  
SYSTEMS ARCHITECTS

*Systek Terminals good value for the DEC user*

All makes of Computers and Peripherals bought and sold

**FOR SALE**

ADDS Regent 25 VDU  
DEC Nova 312, 314, 316, 318, 320  
DEC LISA 24, 1122, 1124, VAX 740  
IBM 3101, 3095, 3096, 3097  
DEC System 25  
System 200, 300, 500  
Teleview 812, 820

**WANTED**

BAFF 812, 740  
DEC Molecular 18, 3M, 6M  
DEC LISA 1170, LISA, HLA2, HMA2  
DEC 110, 1120, 1122  
IBM 3090-3091, 3092, 3093, 3094  
DEC 110, 1120, 1122, 1124  
DEC 110, 1120, 1122, 1124  
DEC 110, 1120, 1122, 1124  
DEC 110, 1120, 1122, 1124

**EOB LIMITED**  
Telephone: 0783 44777  
Telex: 837783

**NEW, EX-DEMO, 2400 BURSTERS**

**DECOLLATOR**  
**GUILLOTIN**  
**SHREDDERS**

National delivery and maintenance

Phone for stock: **02572-7128**

**Unit 2, Clarence St, Chelmsford**

**WE BUY**

**ALL MAKES OF**  
**REDUNDANT/OBSELETE**  
**MAINFRAME COMPUTERS**

Call us NOW on Meldon (0621) 54888

**RAYBOLD COMPUTER SERVICES**  
Unit 12, West Station Industrial Estate  
Spital Road, Malden, Essex

**FOR SALE**

Full course (17 film) DEC "Introduction to Mini Computers with Labelle Courier 1670 units. All in first class order. 9 units and enquiries to: Training Instructor, IBM LTD., High Wycombe, Bucks (0494) 33333, Ext. 28.

## MACHINE DOWN

Why worry about repair costs - Newbury Data now offer a standard charge - a "Hidden Cost" Repair Service.

- ★ D9427H cartridge disc drive £650 +V
- ★ D9448 disc drive £850 +V
- ★ D9762 80 Mb disc drive BK5 Series £1000 +V
- ★ D9766 300Mb disc drive MK7 Series £1000 +V
- ★ DRE 8000 series printer £175 +V
- ★ DRE 4000B (44B) disc drive £750 +V
- ★ DRE S30 disc drive £450 +V

Delivery 30 days - Warranty 90 days parts. Complete Maintenance available on request.

For further information Telephone: Newbury Data Recording, Jill Bartlett on Staines (0784) 62020 or Smith, Manchester (061) 491 0134.

**Newbury Data**  
A member of the DRI Group

**Get your terminals talking for under £500**

**Clearway**  
The best low cost local area networking system

For more details on Clearway call your business card or write to: Clearway, 100, The Quadrant, Sutton, Surrey SM2 5AS

## MARKET PLACE

REDUCE YOUR OVERHEADS BY MOVING TO  
**49/51 FARRINGTON ROAD, EC1**  
Modern prestige building - Centrally located. All amenities

**Showroom/Studio Suites**  
**800/1500 sq. ft.**

Ready for immediate occupation  
Lift - Central Heating - Fluorescent Lighting - Carpeted or Tiled Floors

**01-404 5048; viewing 10-12 daily**

## 2654 DG compatible

There's no other like it!

The 2654 Data General compatible...  
The adventurous service in computers

**DATA GENERAL**

NEW, USED, BUY, SELL, TRADE, REPAIR

- ★ DISK, TAPE DRIVERS, PRINTERS, DASHERS
- ★ MEMORY BOARDS & COMMUNICATIONS
- ★ CONSULTANCY - SOFTWARE, SOFTWARE
- ★ DEPOSIT ON-SITE MAINTENANCE FACILITIES

Please call STEPHEN DAVIS or NICK SCARR  
Middler Business Computers Ltd.  
Unit 1A, Harrogate Industrial Park  
Hartington Lane, Wetherby WDS 8JD  
Telephone: 01937 61101 Telex: 828774 MDC

**WANTED**

IBM 5251/11 and Memorex 1377 VDU's

**FOR SALE**

IBM 3411/3 plus System 38 attach

Call Alan Rankin: 01-223 7862

Offers invited for

**NCR 280 POINT OF SALE TERMINALS**

complete with NCR 791 Cassette Data Capture and OCR-A Word Reader.

45 Systems available August, 1982.

Fully maintained by NCR.

Enquiries to Leeds (0532) 662112, Ext. 212.

## MICRO-COMPUTER MAINTENANCE

APPLE  
IBM  
SIRIUS  
VICTOR

See us at  
Stand No. 56

NATIONAL ON-SITE 24-HR. CONTRACTS

**COMMERCIAL DATA SYSTEMS LTD.**  
Telephone: 0268-710292 (ask for Sales)

BOX NUMBER REPLIES SHOULD BE SENT TO:

**COMPUTER WEEKLY**  
QUADRANT HOUSE, THE QUADRANT  
SUTTON, SURREY SM2 5AS

DEC and DATA GENERAL

Buy, Sell or Trade  
SAMPLE OF STOCK

- S 148 Memory
- C 350 CPU 2
- G53 VDU
- S 15 Disk Drive
- ULM S MUX
- ALM 8
- DHI1 AC
- MS11-IP
- PDPS 8 E

Call Alexander Dods: 01-487 1985 or 01-487 8409

**Thomas Business Systems, Ltd**

## NEW-USED COMPUTER EQUIPMENT

BUY OR SELL THROUGH  
SAMPLE UNITS AVAILABLE FOR SALE

At 15 years 1 Micro, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713,



# Second exhibition wins bigger support from a growing industry

John Charlton provides a preview of next week's show at the Barbican

"PRODUCTIVITY through the integrated office" is the slogan, as exhibitors prepare for the second Office Automation Show, at London's Barbican Centre, June 7-9.

There will also be a three-day conference on office automation. Subjects include: "Office automation tools" and "Facing the human issues". Among the speakers will be David Pirnberg, a prominent UK consultant on leading edge technology in office automation (see page 19).

Last year about 30 exhibitors attracted over 6,000 visitors. This year there will be over 50 exhibitors.

Although young, the office automation industry offers many products. Large and small firms will be at the exhibition, with hardware and software.

Hewlett-Packard, Wang, Data General and Apple will all be showing products new to the UK. A Wang spokesperson says of his firm's exhibits: "They will reinforce our claim as the leaders in the office automation scene. Basically we'll be showing a low-entry system in the Wang VS45 computer range. This is fully compatible with other products in the VS range."

"Prices for a VS45 system obviously vary depending on size and function. A system featuring a CPU, a 275 megabyte disc drive, 10 workstations, four printers, and operating software, including utilities and one compiler, would sell for about £90,000."

"Wang exhibited last year, and thought the show was extremely successful. We attracted the right sort of people."

Hewlett-Packard will display its Desk Manager system, launched in April. This is an electronic mail system, which also handles personal filing, time management and word processing. It is aimed, says the firm, at "the busy executive."

The HP120 personal computer, which is being used by the crew of Britain's America's Cup entry, will be on display. So will a fairly new HP text system and the HP 3000 business computer.

"We didn't exhibit last year," says Hewlett-Packard's Kate Dur-

ton. "But the show has grown and it's a good medium for us to show our products."

The Data General stand will feature the firm's CEO (comprehensive electronic office) system, based on an MV4000 CPU, which can support up to 64 terminals.

A Data General spokesperson said: "We were at the show last year, when office automation was quite new, and we'll be interested to see what sort of visitors we get this year."

Among microcomputer pioneers, Apple will show its new Apple IIc.

British Telecom, recently rescued from privatisation by the General Election, will be showing its latest call connect equipment. Three up-to-date switchboards will be on display: Monarch, Viceroy and Ensign. They are said to save time, money and staff, and provide call diversion, call back, abbreviated dialling and direct intercom facilities.

AppleNet system, which links various types of Apple micro (including Lisa), and is said to allow users to transfer information electronically from one system to another "quickly and easily."

Up to 28 Apple systems can be linked by AppleNet. The price is under \$500 per connection, and an Apple spokesman said that AppleNet would become available in the UK in the autumn, marketed through Lisa dealers.

Middlesex-based Zynar will show its Plan 4000 personal local area network (LAN), developed jointly by Zynar and the US company Nstar.

Plan 4000 was designed for the IBM Personal Computer and the various Apple micros. It can support 255 workstations and has a file transfer facility.

Zynar will be making a special offer on the Plan 4000 to visitors who call at its stands. "We got on very well at last year's show, and picked up about 100 sales leads," said a Zynar spokesman.

The Department of Industry will be at the show. Said a spokesperson: "As yet we have not finalised our plans, but we intend to show a total office of the future. We will also be giving advice to potential buyers of office automation equipment."

"There is money available to help people purchase office automation products, and we'll be only too glad to advise anyone who cares to visit our stand."

De Bono Multiprocessor Computing of Oxford only started in November 1982. It is led by ex-Army officer Peter de Bono, brother of Edward, the famous lateral thinker.

De Bono will feature its Action Discovery network multiprocessor systems. These were developed four years ago in Pasadena by Action Computing Enterprises. One

Handling", as well as a book by Dennis Jarrett, called "The Electronic Office."

Dictaphone, one of the oldest names in office equipment, will display two voice-to-word processing systems, with the 1984 style names Thoughtbank and Thoughtcentre.

Also on show will be Dictaphone's new Model 6000, which the firm says offers a "better than most" library of features.

Sessions of the conference are from 9.30-12.30 and 2.00-5.00. It starts with a keynote session, free to all registered delegates, at which the speaker will be Michael Slyn, manager of office systems for General Motors in Detroit.

General Motors was one of the first giant US companies to automate its offices. Slyn will talk about the problems he and his organisation encountered, and the benefits that have accrued.

Another speaker will be Amy Wohl, president of the Advanced Office Concepts Corporation, of Pennsylvania. In a controversial recent paper on office automation in the UK, Wohl made the claim:



The Barbican Centre, the central London venue for the show.

"Class consciousness is a key issue in the spread of office automation in the UK."

"In terms of the spread of office automation systems, America is well ahead of the UK," she explained. "One major reason for this is that American offices are somewhat less class conscious, and in general, clerical staff in the US are not unionised."

Don Baker, a partner in the Duff-Benley Consulting Group, of Toronto, will start the afternoon session on June 7 with a talk entitled: "Word processing - entry point to office automation."

Word processing is, for most business, the entry point into the world of office automation. Baker will talk on the state of the art in word processing today, from the point of view of available technology, as well as from the viewpoint of management - problems of implementation, as well as

trends in equipment and usage. Pirnberg will discuss methods measuring costs and productivity, and, in his own words, "throw some light on what productivity means to the British European manager."

"Facing the human issues" is the title of a session by Les Nauges, principal of Bureau SA, in Paris, who will talk about ways of solving the problems of redundancy - e.g. by re-training and by changing patterns of work.

OFIX (The Office of the Future Information Exchange) is a British group consisting of users who have worked on what are said to be some of the most advanced projects in the UK. The secretary of OFIX, John Ross, will lead a session entitled "Learning from the pioneers".

The conference will end with a panel of experts discussing the future of office automation.

## A seminar for high-tech entrepreneurs on June 16, 1983 "FINANCING TECHNOLOGY-BASED COMPANIES"

- Cash famine in the midst of plenty threatens Britain's new breed of high technology companies.
- Finance is available to the high-tech entrepreneur if he only knows where to find it.

Our seminar is designed to bridge the gap between sources of finance and the cash hungry entrepreneur

**SPEAKERS** David Cooksey  
Advent Management  
Matthew Bullock  
Barclays Bank plc  
Mike Whittaker  
Simon & Coates,  
Stockbroker

Martin Scicluna  
Touche Ross & Co.,  
Chartered Accountants  
Chairman, Tom Lloyd  
Deputy Editor,  
Financial Weekly

### WHERE

The seminar will be held at the offices of Touche Ross & Co., Hill House, 1 Little New Street, London EC4, on June 16 starting at 9.30. The seminar will close with a buffet lunch.

To: Dept FW/TRI, Praba Kan c/o Financial Weekly, Maxwell House, Worship Street, London EC2.

"Financing Technology-based Companies"

Please supply ... tickets to the above seminar

Name

Position

Company

Address

Telephone No

Enclose a cheque for £

£25.00 plus VAT (£28.75 inc for each application)

VAT Registration No 385 4074 49

Please make your cheque payable to Financial Weekly

## Guide to the exhibitors

ADP Network Services	153	Grafax	302
Advance Micrographics	145	Hewlett-Packard	214
Alpha Numeric	119	Ideal Telephones	214
Apple Computers	525	Institute of Management	103
Aspin Business Computers	102	Consultants	147
De Bono Multiprocessor Computing	507	Institute of Data Processing Management	307
De Bono Associates	509	Keen Computers	105
Britannia Computers	153/161	IBR Microcomputers	102
British Computer Society	145	Management Today	200
British Telecommunications	221	Master Systems	171
Burroughs Machines	120	Minicomputer Commercial	151
Codex UK	513	Minicomp Sales	305
Communicate Magazine	201	Minicomp Office Business	127
Danwood Office Equipment	109	Office Technology	222
Data General	209	Plessey Office Systems	101
Datapoint UK	141	Reflex	218
Datatest Word & Information	327	Sheer Logic	104
Processing Systems	180	Small Business Systems	107
Department of Industry	173	Sperry Computers	132/137
Dictaphone Co	210/207	3M United Kingdom	121
Digital Equipment	106/108	Tetra Data Systems	126
Doric	611	Touchstone Computers	100
Edison Information Systems	110	Wang UK	111
General Computer Systems	110	Word Processor &	306
Gesteiner Computer	177	Zynar	204/206
Gower Publishing Co			

# APPOINTMENTS

Computer Weekly  
Classified Department  
Quadrant House  
The Quadrant  
Sutton, Surrey SM2 5AS  
Surrey  
SM2 5AS  
Direct: 01-661 8080  
Consultancies: 01-661 8787  
Telex: Comweek 892084 Blsps G

Direct client sales  
Talosales Manager  
Shobhan Gajjar  
Field Sales  
Manager  
Mike White  
Consultancies Sales  
Assistant manager  
Julie Hannaford-McInally

Regional Offices  
Birmingham/Bristol  
Vic Shurl  
021-356 4838  
Manchester/Glasgow  
Owen Kelly  
061-672 8861  
Production  
Steve Lever  
01-661 3104

General copy deadline  
3.30 pm Monday prior to  
Thursday publication  
Top Jobs deadline  
4 p.m. Friday prior to  
Thursday publication  
Colour deadline  
4 p.m. Friday prior to  
Thursday publication

Rates  
£31 per a.c.c.  
Quarter page  
Half-Page  
Full Page  
Box nos. £5 extra. Address back to c/o Computer Weekly, Classified  
Dept., Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS

190mm x 125mm £1400  
190mm x 295mm £2320  
390mm x 125mm £2210  
390mm x 168mm £2700  
390mm x 295mm £4390

## Software for developing Programmers to Central London

Our client is one of the leading microcomputer based software houses in the UK. Their specialisation is in the design and marketing of business accounting systems and financial packages covering a broad spectrum of CP/M based systems.

In line with the continuous growth of the microcomputer marketplace, our client is expanding and now seeks to recruit two additional Programmers.

Ideally you will have mini or micro programming experience in BASIC with a knowledge of accounting packages or PASCAL programming with exposure to the development of Financial Planning and Database systems.

If successful, you will have the scope to utilise your creative skills in the design and programming of first class quality products and work within a small, friendly

but professional environment.  
For further information and an early interview please call Knight on 01-491 4706 quoting ref YY130.

**Knight**

Confidential Reply

## Systems Analyst West London

c.£11,500

Grand Metropolitan Information Services is the Computer Services subsidiary of the Grand Metropolitan Group. They are a large and progressive company providing information technology services for the various businesses in the group, which include worldwide luxury hotels, brewing, wines, spirits, food and leisure companies.

As part of their development plans a Systems Analyst is required to undertake a variety of assignments on group systems. If you have at least three years experience and can demonstrate the capability to undertake a very interesting and demanding role then contact Knight on 01-491 4706 quoting reference RC312.

- \* IBM Mainframe
- \* Project Control & Costing
- \* Commercial Systems
- \* Customer Liaison
- \* Staff Supervision
- \* Cobol or PL1

**GMIS**

Grand Metropolitan Information Services

## Analyst/Programmer (Prime Info) City

£10,000-£12,500 + benefits

Our client is a British Oil Exploration organisation with activities in three major areas - United Kingdom, S.E. Asia/Australasia and North America. The London computer services division houses a Prime supporting 20 terminals and a range of technical and financial applications.

They currently require an Analyst/Programmer with a good educational background and sufficient experience to take responsibility for database and technical projects. You will also have the opportunity to work on additional areas including systems administration, user liaison and other technical applications.

Ideally your experience will include some of the following skills:

- \* INFO
- \* Fortran
- \* Database applications
- \* Technical applications

**Knight**

Confidential Reply

## Bedfordshire Bedfordshire Bedfordshire (Image Processing Systems) £12,000-£15,000

BK Industrial Testing Ltd is the manufacturing division within the BK Group of companies. BK provide world wide and are located in the field of Non-Destructive Testing (NDT) inspection for the petrochemical industry.

BK (IT) Ltd has developed a real-time image processing system (CARTIS) for use in NDT areas such as automotive, aerospace and petrochemical engineering.

The Project Engineer will be responsible for writing software for dedicated applications, system configuration and testing. This involves end user and supplier contact, working with the in-house imaging team on the overall design and international travel to customer sites.

Applicants should be qualified in the following areas:

- \* Realtime systems
- \* POP 11 under REX-11M and RT11
- \* Fortran, Pascal or Macro-11 programming

**B.O.X**

## IBM Series 1 Specialist West London

c.£14,000

- \* IBM Series 1
- \* RPS
- \* Assembler
- \* Communications

Our client is an affiliate of a well known multinational group of companies. Their data processing centre utilises state of the art computing facilities ranging from micro through a variety of mini computer systems to powerful mainframes.

You will be engaged in a specialist role to generate an IBM Series 1 network using RPS Assembler linking portable terminals and other devices to an IBM 5081. The position offers an exciting opportunity to the successful candidate with the scope to develop further skills in a multi-machine environment.

**Knight**

Confidential Reply

## Analyst/Programmer Opportunity to move onto Wang Central London

to £11,000 + Bonus

Our client is a leading management consultancy that utilises in-house data processing facilities to support both assignments and their own business administration. A development plan is in the process of implementation and this will include the integration of data and word processing into a network of several Wang computers.

Our client requires an additional Analyst/Programmer to join a small, active and professional systems development group.

This opportunity will suit an adaptable person with a minimum of four years applications experience. Ideally, they will have experience in BASIC or COBOL in a mini computer environment although training will be given if applicable. The successful candidate can expect a benefits package which will include a bonus and also BUPA and luncheon vouchers etc.

For further information and an early interview please contact Knight on 01-491 4706 quoting Ref: YY131.

**Knight**

Confidential Reply

**Knight**

**Knight Computer Services Limited**  
(Recruitment Division)  
14 Old Park Lane, London W1Y 4NL  
A member of the Computing Services Association  
Licensed as an Employment Agency

**01-491 4706**  
24 Hours

**HUNTERSKILL**  
The Hunter Skill Group

For more information about advertising in this composite feature, contact Neil Williams on 01-491 4706.







# Hertz mega prospects with HERTZ

## A few vital statistics

Every 2.5 seconds someone, somewhere in the world rents a car from Hertz. To meet this demand, the company runs over 350,000 vehicles at some 4,500 locations in more than 120 countries. Small wonder that Hertz is world leader in vehicle rental and leasing.

## -applied to your career

In an international operation of this size systems must be a No. 1 priority. And Hertz has always been at the forefront of technological advance. In this exciting, fast-moving DP environment, individual drive, initiative and ability can only thrive - and are both amply rewarded and actively promoted.

Now, with the initiation of major new projects - mainly communications and database oriented - tremendous opportunity arises with Hertz Europe Ltd. It could be your chance to undertake highly innovative development work, to train in the latest technology and to travel in Europe.

## Micro Analyst/ Programmer £9.5K-£11.5K

Number 2 in the Field Automation development team, you will have major technical responsibility for microcomputer projects. The current hardware installation comprises more than 60 Olivetti TC 800s across Europe; a new range of micros is at present under consideration. Minimum requirements are 3 years in computing, 2 or more of them in Assembler programming.

## Systems Analysts £9.5K-£11.5K

Working in the Marketing or Advanced Systems teams, which are IBM based, and currently evaluating the application of IDMS/CICS. A systems background of around 3 years is required, at least 18 months of this in a commercial environment. IDMS/CICS experience with MVS would be an advantage.

## Programmer Analysts £8.5K-£10.5K

Openings are within the Marketing team and involve the further development of the marketing systems, ultimately destined to become IDMS based. Two or more years' systems and COBOL programming experience is demanded.

## Programmers £8.5K-£9.5K

Joining the Customer Accounting team to work on billings and receivables applications will provide valuable exposure to both current systems and major new projects involving CICS and, subsequently, IDMS. Basic requirements are 18 months' broad-based DP experience using COBOL.

Working conditions at the company's new Hounslow Head Office can only be described as superb. Relocation assistance is available.

Why not call Jeff Beaton to talk over your prospects on 01-636 4041 during business hours or 078087 428 during evenings and weekends.

**Fraser Williams**  
Recruitment & Training  
19 Charing Cross Road,  
London WC2H 0ES

# FTB Programmer/ Analyst

IBM System 38  
RPG 3

East Anglia  
to £10,000 plus benefits

This manufacturing company designs and produces a specialist range of products for use in industrial, pharmaceutical and cosmetic markets, and prides itself on the quality of its products. They are seeking to recruit a Programmer/Analyst, who will report directly to the Data Processing Manager, and on occasions will be responsible for the supervision of a trainee programmer.

The hardware is an IBM System 38 using RPG 3, and candidates must have relevant experience. Knowledge of other IBM CSD equipment is beneficial. Applications are of a manufacturing and commercial nature and candidates should have experience within these areas.

The company is committed to the advancement of latest technology and the internal user departments make full use of all computerised systems. Forthcoming plans include a full range of data collection systems via Series 1 to the System 38. Other hardware on site includes DEC (for CAD/CAM applications), Data General, and a number of micros for personal use.

Benefits include an excellent relocation package to this beautiful low cost housing area, free BUPA, and non-contributory life assurance and pension scheme.

For additional details please telephone:

Sue Ashby: Daytime 0784 59247  
Evening 0844 53531

**Ferguson Thorley Bowles**  
Associates Limited  
International Personnel Consultants  
15 Clarence Street, Staines, Middlesex TW18 4JU  
Telephone: Staines (0784) 59247. Telex: 8814148

## OPPORTUNITIES IN AYLESBURY

The Equitable Life, a long-established but progressive and expanding company, has the following vacancies at their modern offices in Aylesbury.

Our current installation comprises an ICL 2955 and an ME29/45.

We operate a two-shift system (8.00 am-4.00 pm and 4.00 pm-12 midnight) and applicants should either have their own transport or live within walking distance of the office.

### SHIFT LEADER

Applicants should be aged between 23 and 33 with at least 6 'O' levels, including Mathematics and English, and preferably with 'A' levels. A minimum of 4 years' DME/G2 and 1 year's TME experience is essential.

### SENIOR COMPUTER OPERATOR

Applicants should be aged between 20 and 30 with at least 6 'O' levels including Mathematics and English and should have approximately 2 years' ICL operating experience, preferably on G2/DME/TME.

The Society offers competitive salaries plus an annual bonus. Other benefits include a non-contributory pension scheme, 20 days' holiday a year, a staff restaurant providing free lunches and the opportunity in the future to be considered for a staff house purchase loan at concessional rates.

To apply, please write or telephone, indicating briefly how you meet our requirements, to: Mrs Carol A. Bird, Staff Assistant, The Equitable Life Assurance Society, Watton Street, AYLESBURY, Bucks HP21 7QW. Telephone: Aylesbury (0298) 33100.

**The Equitable Life**

FOR CLASSIFIED  
ADVERTISING USE  
DIRECT LINES  
RECRUITMENT CONSULTANCIES  
(01) 661 8787  
DIRECT ADVERTISERS  
(01) 661 8080

## SEVERN TRENT WATER AUTHORITY Contract Research Assistant (Systems Analysis)

£3,027-£5,963 p.a.

The Contract Research Assistant will be required to undertake computer modelling tasks associated with a joint study with Leicester Polytechnic for the development of automated systems control for the Wolverhampton water supply system.

Candidates should possess an honours degree in Engineering, Mathematics or Computing and preferably be Chartered Engineers with practical experience in water supply design, computing or systems analysis.

The post will be based at the Authority's Tame Division Office in Central Birmingham and the starting salary, which will be subject to national negotiation on 1 July, will be dependent upon age, qualifications and experience.

The appointment is for a fixed term of two years. As some travelling may be necessary applicants should possess a clean, current driving licence.

Application forms, quoting reference CRA1, and further details are available from the Regional Personnel Manager, Severn Trent Water Authority, Abolton House, 2287 Coventry Road, Sheldon, Birmingham B26 3PU. Telephone: 021-744 4222, Ext. 2076/2077.

Closing date for the return of application forms: 16 June, 1983.  
This post is open to both men and women.

## NORTH EAST THAMES REGIONAL HEALTH AUTHORITY STATISTICIAN (Computing) (S.A.A. Grade)

Salary: £7,961 p.a.-£8,562 p.a.  
(inclusive of £587 London Weighting)

We have a vacancy within our Statistics Section based at St Felix's Hospital, London Road, Brentwood, Essex for a Statistician with computing skills. The main duty will be the analysis of patient based health care records on computerized information systems such as Hospital Activity Analysis and Mental Health Enquiry.

Ideally, applicants should have a relevant degree or equivalent qualification, with appropriate experience, preferably including at least one year in the NHS. Application forms and further particulars may be obtained from the Personnel Department, North East Thames Regional Health Authority, 40 Eastbourne Terrace, London W2 3QR. Telephone: 01-262 8011 Ext. 149. Please quote reference number 4101.

# MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

## The Treasurehouse of the Middle East

BAHRAIN is an island glittering in the azure blue of the Arabian Gulf.

It has become the centre of an international trading community whose members enjoy a standard of living that is second to none in the world. First-class restaurants, hotels and supermarkets provide the creature comforts, the company provided housing is large, spacious and air-conditioned. The sporting facilities, both land and water, are superb. Contrary to popular belief, alcohol is freely available.

We have been retained by a major trading group who have established a company to service the ever increasing information processing needs of its community, in particular the banks.

Basic salaries are to £16K with a review after six months. Contracts are renewable two yearly. Free furnished accommodation will be provided in line with marital status. In addition to local holidays 30 days' overseas leave are provided. At the end of each 12-month period a return excursion, air fare paid, is also included plus company car according to status.

For further information please contact Karen Whelan or Chris Bond on 01-637 9611.

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT &  
EXECUTIVE SELECTION

## UNIVAC ANALYST PROGRAMMERS

Kent To £11,000 + mortgage  
This financial establishment is currently developing systems of 1100 kit using TIP/DMS, and require experienced 1100 people to join their team. Systems are all TP/Database, using a 180 screen network. Interesting work, with excellent career prospects, salary and benefits package. Ref. MN/CW

**CPS**  
RECRUITMENT CONSULTANTS

**COMPUVAC PERSONNEL  
SERVICES LIMITED**  
Compuvac House, 121-123 City Road  
London EC1Y 1JD  
(Next to GPO BT office station, unit 1)  
Tel: 01-253 0045, 01-258 0968 (3928)

FOR  
CLASSIFIED  
ADVERTISING USE  
DIRECT LINES

RECRUITMENT CONSULTANCIES  
(01) 661 8787  
DIRECT ADVERTISERS  
(01) 661 8080

## COMPUTER LECTURERS

Required for expanding training company.  
Knowledge of COBOL, and ability to teach City and Guilds 746/747, systems analysis, and some advanced courses desirable.  
Candidates with industrial experience will be especially suitable.  
Excellent salary depending on experience.

Write with C.V. to:

Personnel Department  
AUTOMATED DATA SYSTEMS LTD  
Paramount House  
104-108 Oxford Street, London, W.1 (3914)

Ferranti Electronics Ltd

## Experienced C.A.D. Programmers

... where else could you  
find such challenging  
work?

At our Microelectronics Centre at Hollinwood, near Oldham our C.A.D. team is one of Europe's most advanced groups working on state-of-the-art microcircuit design - the hub of our international C.A.D. resources.

Logic & Circuit simulation, Interactive Graphics, Database development, Automatic Layout, Engineering workstations - these are just some of the areas where we are setting the pace and combining innovative advanced technology with engineering excellence.

Right now we need experienced C.A.D. Programmers with good honours degrees in Computer Sciences or related disciplines, and 1-3 years experience on VAX and PDP 11 computers using VMS, REXX, ILM, DECnet, Fortran, or PASCAL systems.

Salary and conditions of employment are very competitive and will attract mature, ambitious candidates seeking a challenging and stimulating career.

Write with c.v. or telephone for an application form to: The Personnel Office, Ferranti Electronics Ltd, Fields New Road, Chadderton, Oldham OL9 6NP. Tel: 061 624 0515. (3911)

**FERRANTI**  
Selling technology

## COMPUTER OPERATIONS VACANCIES LEEDS

Senior Operator/Operators c.£6,400 + shift allowance

Leeds Permanent is the UK's fourth largest building society with an expanding Management Services Function and a dual IBM 303x installation based in Leeds. The Society has an impressive record of advanced computer system developments including a national on-line system to our branch network. MVS, CICS, SNA components and IBM 3380 disks are installed. Plans include IBM 3083 processors, IDMS data base and expansion of the telecommunications network to over 1500 terminals.

Additional staff are required to strengthen the Computer Operations team. The work is challenging and varied and offers the successful applicants the opportunity to work in an advanced computer installation, utilising the latest hardware and software.

Candidates for these positions must have at least two years operations experience in an IBM mainframe installation preferably in a VS environment. A practical knowledge of JCL and utilities together with experience of a large network operation would be desirable.

### BENEFITS

The Society is committed to the use of modern data processing technology and therefore can offer excellent scope for career progression with the opportunity to be involved in the operation of advanced systems. In keeping with these challenging career opportunities, an excellent remuneration package is offered including contributory pension scheme, free life assurance and concessional mortgage assistance.

Interested applicants should telephone Leeds 438181, Ext. 2373 for an application form and vacancy specification quoting reference number CW/6/83 or write to:

Mr J. Clark MBIM,  
Personnel Manager,  
Leeds Permanent  
Building Society,  
Permanent House,  
The Headrow,  
LEEDS LS1 1NS.

**the Leeds**  
PERMANENT  
BUILDING SOCIETY

Enquiries will be treated in the strictest confidence. Envelopes should be marked "Staff Confidential". (3910)



# Did you know?

The largest number of bananas consumed in the shortest time was 17 in 2 minutes & Trident are best for contracts!

## Freelance opportunities

**SOUTHERN**  
0252 516141

ADF Programmers  
Analyst Designers with financial background  
BURROUGHS 6800/6700 Analyst/Programmers

**URGENT!!**  
Micro Basic Programmer Analysts & Progs

DATAPOINT Database Database Programmer/Analyst  
DEC RST/E BASIC + 2

DEC RSX CORAL Assembler  
DG RDS Business Basic Programmers

Honeywell Software Engineers  
Honeywell GCOS, TDS

HP3000 IMAGE COBOL QUIZ, QUICK

IBM Assembler with PL/1 Analyst/Programmers

IBM DOS VSE CICS Chief Programmer

IBM DATABASE Administrator with IMS DB/DC

IBM SYSTEM Programmers

IBM 8100 DPCX or DPPX

IBM PL/1, IMS DB/DC

IBM DL1 Programmers with 3-4 yrs. COBOL exp.

IBM COBOL with IMS DB/DC, some with ADF

IBM COBOL CICS/DL1, JSP

IBM DL1 CICS CICS

IBM NOMAD MARK IV FOCUS, RAMIS

IBM PL/1 CICS DL1

IBM Series 1

ICL DRS 20 CICS COBOL Progs.

IBM SYSTEM 38 RPG III

ICL IDMS Systems Prog./Designer

ICL CORAL and COBOL Programmer/Analysts

ICL ME29 TIME RANGE COBOL

ICL SYSTEM 26 Designer and Programmers

ICL VMEB IDMS, all levels

ICL VMEB COBOL Programmers, some with IDMS

ICL 2800 VME Technical Support, all levels

ICL 2900 with TOTAL

INTEL 8086 Programmers

MICHAEL JACKSON structured programming techniques with COBOL

TANDEM Programmers

Technical Author with DEC ASSEMBLER

T1990 DX10 COBOL Programmers

VAX, BASIC, COBOL or FORTRAN

VAX VMS CORAL 68 and INTEL 8086

VAX SYSTEL expertise

VAX, VMS PASCAL or BLISS Progs.

Contact: STEVE CASEY, PETER HOLLIDAY, CHRIS

WHETHERLY, DAVE LONKHURST, DEREK WADHAM, STUART

BLAKE, DAVID BROWN, SANDRA CAREY or EILEEN

CARMICHAEL

**MIDLANDS & NORTH**  
021-742 4431

CIS COBOL Programmers

DEC RSX CORAL Programmers

DEC RSX BASIC + 2

DEC RSTSE BASIC + 2

HP3000 Image, View, Query

IBM 8100 DPPX Progs

IBM COBOL/PLI CICS, DL1 Progs

IBM Series 1, EDX/EDL

ICL DRS 20 Assembler Progs

ICL ME29 COBOL Progs

UNIVAC 1100 COBOL Progs

PERMANENT

2 x IBM MVS Ops. Analysts

IBM Database Technicians

2 x Senior Progs. PL/1/COBOL CICS

Analyst/Project Leader with ICL experience

Contact: NEIL SMITH, DAVE PARKER or KAREN LONGCROFT

**OVERSEAS**  
0252 516141

### IRAQ

Contact: BILL EVANS

12 months + assignments July

TEAM LEADERS and ANALYST/PROGRAMMERS with

Honeywell Level 6 GCOS, MOD 400 and COBOL.

★ £700+ p.w. — Tax Free

★ Expenses

★ Free Flights

★ Free Accommodation

★ Overtime

★ Pref. single but married status considered

### SAUDI ARABIA

Contact: BILL EVANS

12 months + assignments July/August

ANALYST/PROGRAMMERS with PL1, IMS, ADF, TSO/SPF

★ Up to £26,000 p.a.

★ Free Flights

★ Free Accommodation

★ Paid Holidays



### BELGIUM/FRANCE

Contact: BILL TORBITT

IBM Series 1 Banking experience for Brussels

IBM System 38 French speaking for Paris

### HOLLAND

Contact: BILL TORBITT

IBM OS VS1 with IDMS Dutch speaking

### USA

Contact: STEVE WHITING

Urgent requirements for Programmers in Chicago,

Philadelphia, Baltimore, Boston, etc.

Expertise required

IBM COBOL with IMS or DL1

IBM COBOL CICS/DL1

IBM COBOL with PL/1

IBM COBOL with Adabas or Total

UNIVAC 1100 COBOL Analyst/Programmers

UNIVAC 1100 Systems Programmers

UNIVAC 1100 Team Leaders

## PERMANENT 0252 516141

### URGENT SALES OPPORTUNITIES

Contact: FRED BRAMLEY

Sales Manager — Mini Computers £30k

Mini-Micro Sales Executives, target earnings £30k

Financial Systems Sales Executives, target earnings £26k

Marketing Manager — Mini Computers £26k

Financial Analysts with large project experience for Swindon

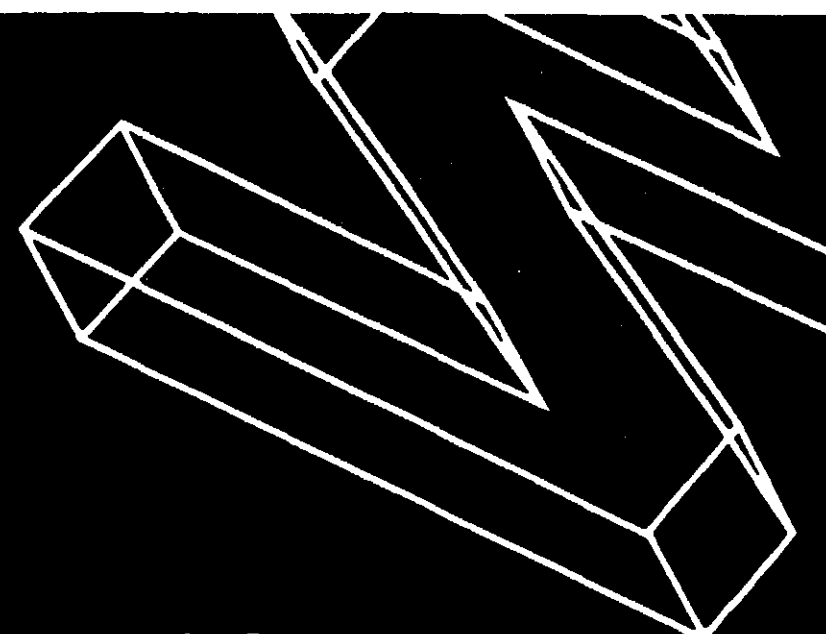
Programmers with ICL COBOL and pref. SCL, Hants. c£9.5k

Chief Programmer and Progs. with IBM COBOL CICS DL1

Surrey to £13k + excellent benefits

Analyst Programmers with JSP COBOL, Middlesex, c£12k

Contact: PETER JEZEPEH for an immediate confidential interview or write, enclosing a detailed c.v.



## Sales Executives

Look where dedication will get you...

Acknowledged innovators in the development of high technology, WESTWARD conceive, design and manufacture raster graphic display terminals. A member of the powerful Telematrix group, based in Tewkesbury, Westward Micro Systems is one of several specialist companies supplying the manufacturing, electronics and medical industries in the UK and abroad. A dedicated approach means that the group is a major — and growing — force, rapidly developing market leadership over a range of highly successful products. Proof of the remarkable quality — and value — of these terminals is the demand to develop a wider base of applications. To lead this expansion we require Sales Executives dedicated to achieving the rewards success will bring. If the prospect of introducing a new, and exciting product is attractive, then this is your chance to make an impact. A major new terminal, aimed at the commercial applications area, is being prepared for market launch by one of our associate companies. We are seeking dynamic professionals who can recognise, and grasp, this opportunity to advance both earnings and career prospects. You will expect to earn in excess of £20K per annum — there is no upper limit. Call our Consultant, Keith Pengelly, or send your C.V. — today.

**WESTWARD**

A step in the right direction

MKA Personnel Limited, Shades House, Medchamps Street, Worcester, WR1 2DQ.  
Daytime Worcester (0905) 612261 Evenings/Weekends Bishops Cleeve (0242 67) 2316.

## MULTI-NATIONAL COMPANY OPERATING

### IN THE GULF AND SAUDI ARABIA

## IS RECRUITING DATA GENERAL EXPERIENCED

## SALES & FIELD SERVICE ENGINEERS

### THE JOBS

1. Salesman/manager required to set up and develop professional sales department. A successful track record of Data General experience essential.
2. Three Field Engineers to MV standard.

### THE PACKAGE/REMUNERATION

1. Free housing and return tickets to UK.
2. Total Tax Free earnings not less than £20,000 p.a.
3. Free Medical treatment.

Only Data General experienced candidates should apply to:

CW Box 1262

with full cv including a recent photograph

# System Programmers

IBM United Kingdom Laboratories Limited at Hursley Park, near Winchester, is the company's largest development laboratory in Europe. We are now looking for two highly experienced System Programmers, male or female, to work in the Computing Services Department, with responsibilities in one of the following areas:-

- \* The performance of three large IBM processors (3081K, 3033MP and 3033CP), and two smaller 4341s. Detailed knowledge of MVS or MVT internals is required.
- \* The support of three large IBM processors (3081D, 3033AP and 3033CP), and two smaller systems, all running a locally enhanced version of VM/370. Sound knowledge of VM/370 CP internals is required, with ideally some understanding of teleprocessing.

You should have a degree or equivalent qualification, with a minimum of three years' solid experience working with large IBM systems and software, and be capable of solving complex systems problems.

We offer a competitive salary supported by a generous benefits package which includes free life assurance, contributory pension scheme and BUPA membership. Relocation assistance will be provided where appropriate.

For an application form, please write to Rena Southcott, Personnel Officer, at IBM United Kingdom Laboratories Limited, Hursley Park, Hursley, Nr. Winchester, Hants, SO21 2JN.

- 15,000 jobs in over 40 UK locations
- Two manufacturing plants
- Development laboratory near Winchester
- An equal opportunity employer
- £522 million exports in 1982
- £119 million invested in UK in 1982

**IBM**

## OPERATIONAL ANALYSTS

c. £10,000

Bankers' Automated Clearing Services Limited (BACS), situated in Edgware, Middlesex, provides an Electronic Fund Transfer (EFT) service to the Banking Industry.

As a result of a carefully planned expansion programme, we need two Operational Analysts to supplement the teams working on both enhancements to the current system and development of the new EFT system. The work involves liaison from project development through to its implementation and issue of operational procedures.

You should be educated to 'A' Level standard and should have a minimum of 4 years computing experience, of which some would have been in an Operational Support capacity. Shift working is not involved.

Excellent benefits are offered which include: profit sharing, non-contributory pension, free life assurance, Luncheon Vouchers, subsidised staff restaurant, Christmas bonus and house-loan benefits after qualifying period.

For further details, please telephone or write to Mrs. R. Sidders, Personnel Officer, BACS Limited, De Havilland Road, Edgware, Middlesex HA8 5QA. Tel: 01-952 2333.



**BACS**

**TRIDENT  
COMPUTER SERVICES PLC**

### WE CARE FOR OUR CONTRACTORS

TRIDENT HOUSE,  
38/44 VICTORIA ROAD, FARNBOROUGH,  
HANTS, GU14 7UD. Telex: 858 233  
Tel: Farnborough (0252) 516141

ELMDON HOUSE,  
2291 COVENTRY ROAD, SHELDON,  
BIRMINGHAM B26 3PS  
Tel: 021-742 4431

Licensed by the D.O.E. as an Employment Agency & Employment Business



## Technical Support, Database and Teleprocessing £15,000 to £20,000

### Kronberg — West Germany

An opportunity to  
move into a varied  
and demanding  
technical support/  
software role.

An opportunity also  
to improve your  
quality of life  
in idyllic  
surroundings.

Set in the charming ancient town of Kronberg, we enjoy the dual benefits of being surrounded by picturesque rolling hills and having easy access to the cities of Frankfurt and Wiesbaden.

We are Braun AG: a highly successful European name in the electrical/personal care and household products market. Certainly in the UK you will be aware of our shaving and haircare range.

Current systems are based on our two 4341 mainframes with a substantial CICS network, and are organised around database techniques. Our technical support teams are obviously heavily involved in the development of the operating system and surrounding realtime and database software. They are also a front-line troubleshooting unit: essential in a time when more advanced techniques are being used in developing new and more comprehensive systems.

We require a skilled IBM Systems Programmer whose background will include two of the following:

DOS/VS (E); VM; CICS; DL/I.

First we'll teach you German. Then we'll provide: an English-speaking, forward thinking and professional working environment; technical involvement in depth and breadth; a totally new life-style.

In the first instance contact our Advising Consultant in the UK — Renée Nute on 01-935 0671 during office hours or 01-874 6372 evenings and weekends. Alternatively, please send your c.v. to her at the London office.

Technical, Sales & Management Appointments

### Specialist Computer Recruitment Ltd

**SOUTH**  
James House, 46 James Street,  
London W1M 5HS  
01-935 0671/498 0481

**MIDLANDS & INTERNATIONAL**  
35-37 Great Charles Street,  
Queensway, Birmingham B3 3JY  
021-236 3781

**NORTH**  
International House, 64 Deansgate,  
Manchester M3 2ER  
061-683 0427

**BELGIUM**  
Avenue Louise 327,  
Boite 4, 1050 Bruxelles  
010 322-640 7181/71

**HOLLAND**  
Willemsparkweg 92,  
1071 H.M. Amsterdam  
010 3120-760947

## Freelancers' Choice

Top rates  
Register now

We urgently require Programmers and  
Analyst/Programmers with the following skills:

<b>IBM</b> OS, COBOL, CICS MVS, COBOL, CICS, DL/I MVS, COBOL (packages) DOS, COBOL, ADABAS	<b>S. Coast</b> London N. London	3 months 3-6 months 3 months 3 months
<b>ICL</b> VME/B, COBOL, IDMS 6 111, Range COBOL, TPS VME/B, COBOL, TP	London London West Country	3 months 6 months 3 months
<b>OTHERS</b> VENTEK, Datapoint, Databus HONEYWELL LEVEL 6, COBOL/ASSEMBLER BURROUGHS, COBOL, DMS2 HEWLETT PACKARD, QUIZ	N. London Herts London London	3 months 6 months 3-6 months 3 months
<b>SCIENTIFIC</b> Networking Experience Ferranti—INTEL 8086, CORAL INTEL 8086, PASCAL/ASSEMBLER Z80 MICROS, CP-M, ASSEMBLER	Midlands Berks Hants Oxon	3 months 6 months 3 months 6-12 months

Contact Lauren Crowe

**BOMARC**

01-402  
0995

60-49 Queens Gardens, London W2

## total integration of factory, office, warehouse and design unit... A New Dimension in Computer Aided Engineering

Counting House has a reputation for innovative ideas. Since 1976 we've been a forerunner in integrated CAD/CAM systems and integrated Business Systems. Now we're taking this vital industrial technology a quantum leap forward and are poised to launch the first fully integrated Computer Aided Engineering system combining both commercial and manufacturing systems and CAD/CAM. If the advantages of this system are obvious, then the potential we offer must be equally so. With a £2 million turnover and part of a large industrial group, there's an excellent future ahead. To help us shape it we now need the following key staff:

### CUSTOMER SERVICES MANAGER

c. £16,000 + car  
In a climate of change, this newly created position will have a major impact on the service we give to our customers both before and after sales. We need a tenacious and self-confident graduate in engineering or computing. Ideally aged 32-40, who has several years' Customer Services Management experience in CAD/CAM or business systems. Familiarity with Prime hardware would be ideal. This is a demanding role, and well developed technical, functional and man management skills are essential.

### BUSINESS ANALYST

c. £13,000 + car  
An essential member of the pre-sales team you'll assess the requirements of prospective customers and determine whether our products will meet them without excessive tailoring of software. Having graduated in production management or computer sciences, you'll probably have trained in Systems Analysis within a reputable consultancy, manufacturer, or management services division, whose emphasis was strongly on standards and disciplines. Since then you'll have spent at least 8 years in a manufacturing oriented environment conducting projects from feasibility to implementation with particular emphasis on user problem solving.

If you recognise the almost limitless opportunities of fully integrated business CAD/CAM systems and share our pioneering spirit, then get in touch now. Contact: C.R.D. Whitfield, Managing Director, Counting House Computer Systems Limited, Fortham House, Fortham St. Martin, Bury St. Edmunds, Suffolk IP31 1SR. Telephone: 0284 68921.

**Counting House**

## SYSTEMS AND PROGRAMMING

### TANDEM PROGRAMMER

**LONDON** £10,000  
Financial organisation based in the City wish to recruit an experienced TANDEM Programmer to work in a progressive environment as part of a newly formed team. The position carries considerable benefits and a competitive salary is offered to the right individual. G.7112

### BURROUGHS PROGRAMMER

**LONDON** £8,000-£9,000  
Prestigious West End company is looking for experienced Burroughs people fully conversant with DMS II. Excellent company benefits include BUPA, interest-free season ticket loan and contributory pension. G.7162

### ICL SYSTEMS ANALYST

**SURREY** £10,000-£11,000  
A systems analyst with at least four years' experience is sought by this organisation. Sound knowledge of pension systems would be a distinct advantage however applicants with a financial, accounting background would be considered. G.7261

### SYSTEMS ANALYST

**LONDON** £11,500-£13,500  
A progressive commercial bureau is seeking an experienced systems analyst to take a leading role within the organisation. A minimum of five years' DP with at least two as a systems analyst, with experience of either bureau, software house or Burroughs hardware will give the successful applicant a competitive salary and demanding but rewarding position. G.7286

### IBM ANALYST/PROGRAMMERS

**MIDDLESEX** c. £12,000  
A well-known publishing company are looking for people to join a small friendly development team. Two-four years' PL1 programming/analysis experience is required, however, candidates with a very good programming background who want to further their career in analysis, will be considered. Most new projects are developed using the current on-line system. System uses VM/CMS, DOS/VSE, Power and Cics. R.7297

### IBM SYSTEMS ANALYSTS

**LONDON/HOME COUNTIES** UP TO £16,000  
We have a number of clients, from the world of banking, insurance and commerce seeking analysts with good sound experience in their particular field. Vacancies range from programmers who want to move into analysis up to senior systems analyst/project leaders. Knowledge of any of the following is desirable — COBOL, PL1, RPG II and III, CICS, DL1, DATABASE. G.GEN

### ANALYST/PROGRAMMERS

**LONDON** £NEG  
City based software house seeks analyst/programmer with experience of Database design using IBM DOS, CICS, DL1 and/or NCR, VRX, TOTAL, TRANPRO with COBOL. International banking experience is desirable. Salary dependent upon experience. R.7380

### SYSTEM 38

**MIDDLESEX** c. £12,000  
Opportunity for a technical programmer and systems analyst on a System 38 in a growing young insurance company. Experience in insurance and/or retail applications is desirable but not essential. System 38 experience is not necessary for the systems analyst position. R.7343

FOR FURTHER INFORMATION, PLEASE TELEPHONE 01-438 7871

## OPERATIONS

POSITION	SALARY	LOCATION	EXP.	POSITION	SALARY	LOCATION	EXP.
ICL ME29 OPERATOR	£6,000	SURREY	1 YEAR	HP SHIFT LEADER	c. £7,500	BERKSHIRE	3 YEARS
ME29 SNR OP	£6,500	LONDON	1 YEAR DAYS ONLY	OPS MGR. SEN OP	£12,500 £10,000	BERKS LONDON	10 YRS. DOS/VS 3 YRS. MVS JES II
2900 VME OP	£NEG + BONUS	BERKS	2 YEARS	OPERATOR OPERATOR	£8,500 £7,000	KENT W. LONDON	3 YRS OS/DOS 1 8 M N T H S DOS/VSE
VME/B NETWORK TEC.	£10,000	MIDD		OPERATOR	£8,500	SURREY	1 YR DOS/VSE, VM
DEC NETWORK ASST/CON	£8,000 + 10%	WALES	2 YEARS	OPS SUPPORT	£10,000	SCOTLAND	5 YRS TSO/JCL
OPERATOR	£7,000	SURREY	18 MONTHS	OPS SUPERVISOR	£9,500	MIDD LONDON	7 YRS DOS/VSE
OPERATOR	TO £6,000 + 15%	LONDON	1 YEAR NOT NEC. DEC	TEC SUPPORT	£10,500		5 YRS VSAM/- CICS, JCL
WANG OP	TO £10,000	LONDON	2 YEARS	OPERATOR TEC SUPPORT	£7,500 £9,000	LONDON BEDS	2 YRS DOS/CICS 5 YRS OS/JCL
HONEYWELL 6 & DPS 6 OPS	£6,750	WILTSHIRE	1 YEAR				

## CONTRACTS

### SWIFT CONSULTANTS

We require appropriately experienced staff to work in London and design formats for SWIFT inputs. Also to provide consultancy and training.

### ADABAS

Analyst/Programmer to participate in a VAX to IBM conversion. Extensive experience of COBOL and ADABAS is essential.

### DEC VAX

We have a number of requirements in and around London for VAX BASIC and COBOL programmers.

### IBM SYSTEM 38

We have three requirements for RPG III Analyst/Programmers specifically with experience of BANKING/FINANCIAL applications.

### TANDEM

We require programmers who have worked with NS1/2. GUARDIAN experience preferred but not essential.

### CICS COBOL/MVS

We have two clients with requirements for programmers with extensive experience on Micros using either of these languages.

### MVS SYSTEMS PROGRAMMERS

Two interesting vacancies exist for systems programmers, one OS/MVS and one IMS/MVS.

### ICL IDMS

A company in London requires a number of Cobol programmers with solid IDMS Cobol experience.

### HP3000 FORTRAN

We have an assignment in the East Midlands for an Analyst/Programmer. The successful applicant will have the opportunity to gain experience of QUIZ.

### COBOL IMS DB/DC

Analyst/Programmers required for long assignments, the location being either London or on the South Coast.

### REDIFON DATA CAPTURE

A large financial establishment in the City require system trouble-shooters with Redifon experience.

### COBOL CICS/DL1

We have a number of requirements throughout London and the Home Counties for programmers with in-depth experience in these areas.

### DATABASE DESIGN

A long contract in the City is available for a consultant to recommend and install a Database for a merchant bank.

### IBM SYSTEM 34

Our City client requires a number of analyst/programmers with an in-depth knowledge of Banking, preferably with MIDAS.

### PL/1 CICS

We have several requirements for senior programmers in London and the Home Counties.

**datascene**

Datascene International Limited

Seaport House 168-173 Regent Street London W1R 7FB  
Telephone: 01-438 7871 Telex: 25851

مكتبة الرضا



# SYSTEMS & PROGRAMMING

## CONTRACT

ICL 2900, VME/B, SCL, COBOL, IDMS PROGRAMMER - London  
 ICL 2900, VME/B, COBOL, IDMS PROGRAMMERS - Manchester  
 ICL 2900, VME/B, COBOL, IDMS SYSTEMS PROGRAMMER - London  
 D.G. NOVAC, AOS, INFOS &/OR TPMS, COBOL PROGS - London  
 D.G. NOVAC, RDOS, BUSINESS BASIC PROGRAMMERS - London/S. Coast  
 IBM 4341, DOS/VSE, PL/1, CICS PROGRAMMERS - London  
 SENIOR MVS SYSTEMS PROGRAMMERS X 2 - London  
 CICS/DL1 SYSTEMS PROGRAMMERS X 2 - London  
 TANDEM, GUARDIAN, COBOL PROGRAMMERS - London  
 HP 3000, IMAGE, QUERY, COBOL PROGRAMMERS - London  
 UNIVAC 1100, EXEC 8, FORTRAN PROGRAMMERS - Hertfordshire  
 BURROUGHS B6800, GEMCOS, COBOL PROGRAMMERS - Atlanta, USA  
 COBOL, IMS PROGRAMMERS - Atlanta, USA  
 IMS DATABASE WITH MSS - Florida, USA  
 COBOL, SHADOW 2 PROGRAMMERS - London  
 NCR 8450, IRX, COBOL ANALYST/PROGRAMMER - London

**PERMANENT** HP 3000 - IMAGE, VIEW, QUERY  
 Career posts for A/P's with client orientation £10,000-12,000 plus car & PROJECT LEADERS to £14,500.

Contact David Mason Johns on 01-948 5922 (office hours)  
 or 01-747 0989 (evenings/Weekends)

**KPG**  
 01-948 5922

KPG Computer Support  
 Services Limited  
 Cobden House, Park Lane,  
 Richmond, Surrey, TW9 2RA



## SYSTEMS ANALYST/PROGRAMMER (2) ABU DHABI

**POUND STG.20,000 & SUBSTANTIAL BENEFITS AND END OF SERVICE**

### GRATUITY TAX FREE

A major financial institution in Abu Dhabi requires two system Analyst/Programmers to assist in the development of financial applications on VAX and PDP 11/70 Computers. Applicants must have a minimum of three years' experience in a similar position and have been actively involved in at least one major financial project. Good basic + 2 is essential and experience of VAX or PDP 11 series computers is desirable. Preference will be given to those applicants with a financial background and any experience in investment applications will be a distinct advantage.

The successful candidate will live in Abu Dhabi and a contract for 2 years is envisaged. Salary will be negotiable and is currently free of tax in Abu Dhabi. Free accommodation, medical facilities and a generous car allowance will be provided.

Please send immediately your career resume including telephone number and any dates of forthcoming holiday to:

M. E. White (DP Manager)  
 Abu Dhabi Investment Authority  
 18th Floor  
 Hong Kong Shanghai Bank Building  
 99 Bishopsgate, London, EC2.

(3808)



## DATA PROCESSING MANAGER

required at the  
**BOROUGH OF GREAT YARMOUTH**  
 SALARY up to £12,174 (pay award pending)

We can cure herring: Can you cure computer problems?  
 The Council operates a Univac 90/30 which will be replaced by a System 80/6 early in 1984. The successful applicant will be responsible to the Treasurer for the management of the Computer section and for implementing our ambitious development programme.

Write to the Treasurer, Municipal Offices, Hall Plain, Great Yarmouth for further details, or telephone Collin Watts, Senior Assistant Treasurer on Great Yarmouth (0493) 3233 Extn. 13.

Closing date for applications Monday, 13th June.

(3827)

## CONTRACTS

**IDMS/TPMS**  
 Designers UK, Europe & South Africa  
 Programmers UK, Europe & Middle East

**VME**  
 Support Technicians UK & Europe  
 Project Managers UK & Far East

**SYSTEM 10/25**  
 Programmers UK & Scandinavia  
**CORE INTERNATIONAL LTD**  
 82 Wolverhampton Road, Stafford, Staffs. ST17 4AN

(3808)

## CITY OF LONDON POLYTECHNIC SCHOOL OF COMPUTING, MANAGEMENT SCIENCE AND MATHEMATICS AND STATISTICS

### RESEARCH FELLOW

Applications are sought for a Research Fellowship which is tenable for two years. The fellow will be responsible for the supervision of research students and the carrying out of research in the field of computer science or management science. The person should have a PhD or equivalent and be a member of one of the following:  
 (i) The development of formal and software tools to permit the exchange of routines between different systems.  
 (ii) Methods by which a formal system may describe itself with manual user involvement.  
 (iii) Methods by which a formal system may describe itself with manual user involvement.  
 (iv) Security and access aspects of data bases.  
 (v) Network architectures and communication protocols.  
 Salary is £12,000 in the first year of appointment, rising to £13,117 in the second year (including London Allowance). Salary scales are under review.  
 Please apply in writing, giving full details of your qualifications and experience, to the School of Computing, City of London Polytechnic, 117 Fenchurch Lane, London EC3A 3BF. Please quote reference number 63/26.

(3808)



## Sharpe Bennett Associates Limited CONSULTANTS, SYSTEM ANALYSTS AND EXPERIENCED COBOL PROGRAMMERS

Owing to the continued expansion of our software house operation, we require more experienced personnel to strengthen our team. We are looking for all levels, for mature and responsible staff with a proven track record in the following areas:  
 - Computer methods and a thorough understanding of modern, interactive business and banking systems.  
 - A thorough knowledge of business systems.  
 - Ability and willingness to work with ability and position and can include per, private medical cover and pension scheme.  
 - A high level of initiative and drive.  
 - A high level of initiative and drive.  
 - A high level of initiative and drive.

(3808)

## SOUTH EAST THAMES REGIONAL HEALTH AUTHORITY

### CAMBERWELL COMPUTER CENTRE SENIOR COMPUTER OPERATORS (2 posts)

£7,230-£9,140 (including shift allowance)  
 Proficiency payments of up to £830 may also be payable

**EQUIPMENT** - ICL 2904s being replaced by 2955s + various terminals  
**OPERATING SYSTEM** - DME GEORGE 2  
**EXPERIENCE** - VME  
 Knowledge of Data Communications as well as two years' minimum operating either VME or DME 2

If you can meet the above requirements and are able to demonstrate qualities of leadership and self reliance we will be interested in hearing from you. Both posts will involve shift working and although the successful applicants will be based in the first instance at King's College Hospital, London, they will be expected to work anywhere within the South East Thames Region. For an application form returnable within two weeks from the date of this advert apply to:

Computer Installation Manager  
 King's College Hospital  
 Computer Installation  
 Denmark Hill, London SE5 8RS  
 Tel: 01-274 8222 Ext. 2576



(3812)

## Contracts

URGENT UK and Overseas requirements include:  
 IBM CICS Assembler Programmer Yorks  
 IBM CICS DL1 Cobol Programmers NE  
 IBM MVS Programmers and Analysts S. Arabia  
 IBM DP Instructor S. Arabia  
 IBM 8100 DPPX Cobol Programmer Yorks  
 ICL Range Cobol TPS Analyst/Programmer NF  
 B 1800 Cobol DMS2 Programmer Yorks  
 HP 3000 Analysts and Programmers Scotland  
 Coral Programmers Various  
 Senior Financial Systems Analyst Scotland

## + Permanent

IBM 8100 DPPX Cobol Programmers Sheffield  
 IBM 8100 DPPX Assembler Programmers Sheffield

For these and other early starts contact Malcolm Frost on 0742 730191 (or 0824 472328 evenings 7-9pm)

**GMS Computing Ltd**  
 Smithfield House  
 Sheffield S1 2BU  
 Tel: (0742) 730191

(3808)

## NICK GILL

I am setting up a new computer contract staff agency in the Thames Valley which will be part of one of the U.K.'s leading agency groups. To do this I will need the help of some enthusiastic individuals to establish the following divisions:

- Programming
- Operations
- Key Punch

Please telephone Nick Gill at home after 6pm on Ascot (0990) 20621  
 All replies will be treated in the strictest confidence

(3808)

## GET AHEAD - USA!

**N. SURREY £12K+++**  
 Small dynamic software house with interesting dedicated commercial applications seeks Programmer/Team Leader. Friendly young management coupled with involvement and training in CICS and Database on industry standard hardware will ensure your career security. If you are keen to be involved in meeting customers (many in USA) helping to build a company and have commercial programming skill then call today.

Consultant's Ref. 1059

**ab executive (kingston) ltd**

01-549 6441 (24 hours)

(3827)

# FIELD ENGINEERS



Recognition Equipment Limited



Recognition Equipment, a world leader in the field of data entry is seeking to recruit additional staff to join the expanding U.K. field engineering group.

The successful applicants will provide on call and on site support on a wide range of highly advanced computer based products.

**Suitable candidates will have at least two years customer engineering experience preferably on mini or micro based systems.**

The position offers attractive salaries, shift allowance and London Weighting where applicable, company car and the opportunity to join an informal but professional team of enthusiasts working with an interesting range of high technology products.

For further details telephone Keith Taylor at our Reading Office or write enclosing a full C.V.



McCOURT COUSINS LTD.

27-29 Greyfriars Road,  
 Reading, Berkshire  
 Telephone (0734) 595346 (24 hours)

Chesham House, 150 Regent Street,  
 London W1R 5FA  
 Telephone 01-439 6288

## LIVERPOOL POLYTECHNIC COMPUTER SERVICES DEPARTMENT

### ANALYST/PROGRAMMERS £7,791-£8,325

A number of Analyst/Programmers are required to assist in the provision of a comprehensive computing service to the Polytechnic, based on DEC-20 and VAX systems. Over 150 terminals are supported, distributed over 12 sites. These posts offer varied and interesting work in the following areas:

1. Applications: Support, development and advice on a large library of applications software and a variety of languages.
2. Systems: Support of TOPS-20 and VMS operating systems, networking, micro systems, etc.
3. Administrative Computing: A team is being set up to develop an interactive Management Information System for the Polytechnic.

Applicants should have, or expect to obtain, a degree or equivalent qualification. Applications are particularly welcomed from those who expect to graduate in Computing Science this year.

For further particulars and an application form, contact the Personnel Officer, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel: 051-207 3551 Ext. 2516.

Please quote Reference No. LP 580.

Closing date 14 days from the appearance of this advertisement.

The City Council is an Equal Opportunity Employer and welcomes applications irrespective of race, sex, marital status or disability.

(3843)



## BRUNEL UNIVERSITY

### Initiative in ADVANCED INFORMATION TECHNOLOGY Research Lecturer

A Research Lectureship is offered in the Department of Electrical Engineering and Electronics. The department, together with its Cybernetics division, is active in several aspects of Advanced Information Technology.

Applicants should have an interest in one or both of the areas listed below and sufficient experience to make a rapid contribution in research:

Computer Aided Design  
 VLSI Architecture

Salary according to qualifications and experience, within the Lecturer scale £8,376-£13,505 per annum plus £1,156 per annum London Allowance, with USS benefits.

Application form and further particulars from the Personnel Secretary, Brunel University, Uxbridge, Middlesex UB8 3PH, or telephone Uxbridge 87188, ext. 48. Closing date: June 24, 1983.

(3808)

## ilea Inner London Education Authority

### Director of ILECC

Inner London Educational Computing Centre

Salary Range £13,812-£15,492  
 plus £1,284 London Weighting Allowance

ILECC provides hardware and software support for the computing resources used by ILEA's schools, colleges of further and higher education services, potentially over a thousand institutions.

Applications are invited for the post of Director of ILECC. This is a senior appointment to run a well-equipped, well staffed centre. The successful candidate will have had extensive experience of computing. He or she will have demonstrated ability to manage a professional team dealing with all aspects of computing.

Application forms and further details available from the Education Officer (EO/Estab 1B), Room 385, County Hall, London SE1 7PB. (Please enclose a stamped addressed envelope).

Closing date for the return of completed applications to the above address is June 27, 1983.

ILEA is an equal opportunities employer.

(3804)



## ADP the world's largest computing company require CHIEF OPERATOR

Our computer department has a 1803T and 370/145 and is looking for experience in the following areas:

- ★ Ability to motivate staff working three shifts.
- ★ Capable of giving training in operation of 370/145 and ensuring that standards are maintained.
- ★ Good understanding of JCL, OS/V81, IEM Utilities and SERVICE AIDS.
- ★ Willing to be part of an active management team.

Pleasant offices, staff relaxation room, pension scheme, etc.

Good salary for the right applicant.

Please telephone for an application form or send full details to:

Beryl Young, 01-697 3041  
 Automatic Data Processing Ltd  
 Hawthorn House, Bath Road  
 Cranford, Hounslow, Middlesex TW6 9EP

(3835)

## PROGRAMMERS, ANALYST/PROGRAMMERS, SENIOR PROGRAMMERS

**£18,000 to £28,000**

We have requirements for PL/1 staff with the following skills:

- ★ OS JCL & TSO/SPF
- ★ VM/CMS
- ★ IMS-DB or DL/1
- ★ IMS-DC or ADF
- ★ CICS or VSAM
- ★ MARK IV or GML/SCRIPT
- ★ STRUCTURED TECHNIQUES
- ★ Experience of Financial, Payroll, Materials or Transportation Applications.

If you have ANY of the above skills, we are interested in YOU.

These are ONE-YEAR Contracts in the following locations:

**SAUDI ARABIA** (TAX FREE PLUS £11,000 Expenses Package)  
 — OVER 50 VACANCIES

**SOUTHERN ENGLAND** (including some 6 or 9 Month Contracts)  
 — OVER 20 VACANCIES

**START DATES — MAY TO JULY**

**RING NOW — and ask for Rosalba (Roz) De Lisi on:**

**01 - 222 6722**

01-222 6722



## COMPUTASTAFF

Langston House, 11 Langston Street, London, SW1V 3DL, 01-222 6722 (10 lines) Telex 854364

## Data General

### System analyst(s) Analyst - programmer(s) EUROPE

The Company:  
 Data General Corporation is a world leader in small computer systems. Founded 15 years ago, it is already one of the "Fortune 500" American companies with an annual turnover of over \$-600,000,000. The company employs over 14 500 people world-wide and over 120 000 computers are installed in 57 countries. Data General constantly invests over 10 % of its annual sales revenue in research and development.

The job:  
 • evaluate, modify current applications • develop new applications • provide technical support to European subsidiaries.

Requirements:  
 • graduated in EDP • at least 3 years of experience • COBOL knowledge • short travels in Europe • you will be based in our headquarters in Paris.

Interested?  
 Send your application to Personnel Department  
 DATA GENERAL EUROPE - Tour Manhattan - 5/7, place de l'Iris  
 92035 PARIS LA DEFENSE II Cedex 21 FRANCE

## join the winning team Data General

### THE EUROPEAN CENTRE FOR MEDIUM RANGE WEATHER FORECASTS (ECMWF)

An international organisation located at Shinfield Park, Reading, Berkshire RG2 9AX, England, intends to add further up to two years, starting on October 1, 1983 or soon after:

### I. MVS SYSTEMS ANALYST II. TELECOMMUNICATIONS SENIOR ANALYST

The remuneration paid by ECMWF is net of income tax. The salary will depend on the qualifications of the candidate and will be between £18,000-20,000 p.a. (inc. tax). Qualified candidates with at least four years' relevant experience should send their applications with a detailed C.V. and two recent photographs before August 1, 1983 to:

Geord R. Hoffman, Head, Computer Division, ECMWF  
 Shinfield Park, Reading, Berkshire RG2 9AX, England  
 or telephone him at (0734) 870000

(3808)



DALROTH

# KUWAIT Alghanim INDUSTRIES

## £20,000-£25,000 Tax Free

### plus Married Status plus Excellent Benefits

The MANAGEMENT INFORMATION SERVICES GROUP of this major Middle East Company, trading on a wide basis are looking for two CAREER PROFESSIONALS to take their Data Processing Function into the 1990's.

KUWAIT offers one of the most progressive and liberal environments in the Middle East where the whole family can enjoy a high standard of living, with schooling to 'A' level standard, superb sporting and social facilities, excellent accommodation and working conditions and full medical and life and disability insurance cover.

ALGHANIM INDUSTRIES have a progressive policy of development both for their equipment and staff, with a positive policy of promotion from within; however to implement their immediate plans they currently require to recruit externally:

### TECHNICAL SERVICES MANAGER

who will have a minimum of 10 years' experience and be thoroughly familiar with the software range on the installation described below.

### SYSTEMS and PROGRAMMING MANAGER

who will also have a minimum of 10 years' experience, with a heavy emphasis on Business Analysis and Project Management. Experience of retailing and inventory control systems in a commercial environment, utilising on-line distributed processing techniques, is also essential.

The installation is a 2 MB IBM 4331 running under DOS/VSE POWER/VSE, using CICS/DLI on-line to 3270 TERMINALS and 5260 P.O.S. TERMINALS (scheduled for Sept.). Other software used includes VOLLIE, LIBRARIAN, CA-EARL, CA-SORT, JASPER etc. Also to be supported are CMC MICRODATA and a range of MICROS (including the IBM P.C.) to be introduced for Distributed Processing and Office Automation Systems.

Screening and initial interviews will be held in London early/mid June and selected applicants and wives will have the opportunity to visit the Group's Headquarters in Kuwait.

For further details please contact Peter Henrick on 01-493 2947 days, or 01-390 1640 evenings/weekends quoting Ref. No. 9978.

DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON W1



L.E.R.S.

Research Centre of the French Company Synthelabo is recruiting for its scientific computing group

### computer scientists

to work on applications related to many aspects of pharmaceutical research. Candidates must possess:

- a good honours degree in computing or equivalent
- an in-depth knowledge of UNIX and C
- an interest in DBMS.

Experience of any of the following would also be useful but is by no means essential:

- biomedical research
- PRIME
- WANG
- HEWLETT-PACKARD
- French language.

All applications will be treated in the utmost confidence and should be addressed to: L.E.R.S. Direction administrative et technique 58-60 rue de la Glacière 75013 Paris France.



### OPERATIONS SUPPORT STAFF

The Royal Bank of Scotland has vacancies for experienced JCL writers in its Operations Support Group, based in their Data Processing Division at 34 Fettes Row, Edinburgh. The Division, which employs some 300 staff, is the focal point of the computer network which serves the Royal Bank throughout the UK.

Currently we have 1 x IBM 3033N, 1 x IBM 3032 and 2 x IBM 370/158 AP installed operating under MVS/JES2 and VM/CMS to cater for on-line and batch applications and an IBM 3083J is scheduled to be installed in June.

Ideally, candidates will be in their early twenties and will have two to three years MVS JCL experience. This must include a working knowledge of VSAM, catalogued procedures and generation data groups. Although not essential it would be a distinct advantage to have knowledge of one or more of the following: VM/CMS, TSO, OPC, DCF, FDR, UCCI and UCCII.

The post carries a competitive salary and a number of attractive fringe benefits including non-contributory Pension and Staff House Purchase Schemes.

Applications and enquiries, stating age, qualifications and full career details should be made in writing to:

AJ McCreath Esq,  
Assistant Staff Manager,  
The Royal Bank of Scotland plc,  
PO Box 31, 42 St Andrew Square,  
Edinburgh EH2 2YE.



The Royal Bank

## Opportunities in Automation & Control systems

Our Client is a worldwide Organisation, with many brand leaders for the consumer marketplace. Already an acknowledged exponent in the use of mini and micro computer based technology to aid the efficiency and cost effectiveness of their production processes, they are continuing to increase their investment in this advanced area of technology.

As a result, they now wish to make two key appointments within their Systems Engineering and Control Engineering functions. Both positions represent superb opportunities for the successful Candidates to join small specialist teams working with innovative technology. Occasional travel within the UK and overseas is envisaged.

### Senior Software Engineer to £13,000

To join a small independent unit responsible for providing high performance software/hardware systems within challenging and innovative areas, which currently includes Computer Vision, Robotics and Communications. Whilst a use is made of DEC and RTL2, experience in this area is not essential providing a sound software background in real-time, multi-tasking applications can be shown. Again, whilst not a pre-requisite, a Degree would be most welcome.

### Control Engineer c £11,000

Three to four years experience in the design and application of process control and automation systems, utilising microprocessor or computer based technology is ideally required for this position, which is linked to the development of a highly automated production plant. Candidates should preferably be qualified to Degree standard in electrical, electronic or control engineering, and have a sound understanding of instrumentation and digital control techniques.

In both instances, it is equally important that Candidates possess good interpersonal skills enabling them to deal effectively at all levels of user contact.

Terms and conditions of employment are excellent, and the benefits package will include generous assistance with relocation to this pleasant area of South Birmingham, close to the countryside of Warwickshire, Hereford and Worcestershire.

As your first step towards these challenging opportunities, contact our Advising Consultant, Peter Lees, on 021-236 3761 (24 hour answering service) or 0902 632141 (Evenings and Weekends).

Technical, Sales & Management Appointments

### Specialist Computer Recruitment Ltd

**SOUTH**  
James House, 46 James Street,  
London W1M 5HS  
01-635 0871/486 0461

**MIDLANDS & INTERNATIONAL**  
35-37 Great Charles Street,  
Queensway, Birmingham B3 3JY  
021-236 3761

**NORTH**  
International House, 84 Deansgate,  
Manchester M3 2ER  
061-633 0427

**BELGIUM**  
Avenue Louise 327,  
Belle 4, 1050 Brussels  
016 322-840 7151/71

**HOLLAND**  
Willemsoordweg 92,  
1071 H.M. Amsterdam  
010 3120-760947 (3907)

## IMS OPPORTUNITIES

If you are seeking a rapidly developing IMS environment where you can develop your skills then excellent career opportunities exist with our client who has Computer Centres in the West Midlands and Essex. The West Midlands Centre houses dual IBM MVS mainframes supporting IMS and TSO via a nationwide VTAM network exceeding 1000 terminals. The Essex location is an IBM MVS CICS environment which will shortly be moving to IMS. As a result of this development the company is seeking high calibre IMS staff in two areas:

### IMS SPECIALISTS

As an IMS Specialist you will be providing advice and guidance on all aspects related to IMS database system design, development and support. This will include close liaison with applications development staff and technical systems staff to ensure the most efficient utilisation of IMS.

Some travel to other UK locations is envisaged to enable specialist consultancy activities to be performed.

The company is a member of a very successful UK Group and is able to offer excellent career prospects. Commending salaries are negotiable dependent upon experience offered and the benefits package includes relocation assistance if required. Both centres are sited in pleasant residential locations with attractive surrounding countryside.

### IMS SENIOR SYSTEMS PROGRAMMER

As an IMS Senior Systems Programmer you will be responsible for the installation and performance tuning of a complex IBM IMS software environment. In addition to sound IMS technical skills you will ideally offer general systems programming and systems generation experience. The ability to supervise junior staff and perform a team leader role will be an additional advantage.

## WEST MIDLANDS AND ESSEX

£10~£15,000

To progress an application for these positions write or telephone DP Selection Services quoting reference W6021.

Initial interviews may be conducted in the Midlands or at our London Offices.

01-434 2042

(24 hour Answerphone)

**dp SELECTION SERVICES**

A member of the DP Support Services Group

7 Swallow Street, London W1R 7HD

"We look forward to hearing from you."

### DARTFORD AREA

For major client with IBM Mainframe, z/OS, and business services

### PROGRAMMER

24-30 Degree Maths Computer Science Experience in DEC PDP11 and RSX11M Fortran and Micro

### SYSTEMS ENGINEER

22-35 Degree Maths Computer Science Engineering Experience of computer software development for Control Aided Design

### STYLING EXECUTIVE PERSONNEL

Salaries negotiable For further details contact 01 310 4077

## Management Services Manager

### £17,000 North West London

The company is a well-established subsidiary of a major international group who are embarked upon a substantial growth programme.

To support this growth it is planned to install comprehensive manufacturing systems and the up-grade of existing financial and commercial systems. The person appointed should have proven experience of introducing manufacturing systems and of managing a department to plan and achieve objectives.

Applicants should apply with details of their career and relevant experience to Confidential Reply Service, Ref. ASM 8727 Austin Knight Limited, London W1A 1DS.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor.

## Tri-Wall CONTAINERS LIMITED

### SYSTEM 34 ANALYST/PROGRAMMER

#### c. £10,000 LOUGHTON, ESSEX

We are looking for an experienced IBM System 34 Analyst/Programmer who is seeking to take his first step towards Data Processing Management by taking responsibility for programme of improvements envisaged, including communications with a large IBM mainframe.

The successful applicant must have had two years' experience of systems analysis and programming using R.P.O.I.I.

We are a well-established member of an international group, marketing packaging supplies and systems. The basic salary is negotiable according to experience, and is supported by comprehensive other benefits.

Send your C.V. to our Financial Controller

TRI-WALL CONTAINERS LIMITED  
15 HIGH BEECH ROAD, LOUGHTON, ESSEX



# SYSTEMS AND PROGRAMMING

## RPG II/III

**PROJECT LEADER/IBM SYSTEM 38** To £14,000  
One of the world's largest food chains require an experienced person to head a small development team, developing a wide range of interactive business systems, preference will be given to candidates who can demonstrate leadership ability, and familiarity with design and programming methods gained in an IBM System 38 environment. The company offer an attractive salary together with good company benefits. Ref: G/2333

**SENIOR ANALYST/PROGRAMMER** To £13,000  
Large manufacturing concern in South-West London require a Senior Analyst/Programmer to play a key role in their IBM System 38 development plans. Having recently upgraded, an extensive background in IBM System 38/RPG II is essential, preferably coupled with some System 36 and/or MAMP/ICS experience. This is a pure development role, acting as second in command to the D.P.M., so you should be capable of holding all levels, and supervising where necessary. Ref: G/2336

**IBM SYSTEM 38** KENT £10,000  
A leading retail organisation are currently seeking an Analyst/Programmer with sound knowledge of RPG II, and with at least 18 months' experience in an IBM System 38 environment. In addition to good analytical skills, candidates should have a mature and responsible outlook. You will have a major involvement in the implementation of a Stock control System, and maintain on going systems. Ref: G/2326

## IBM COBOL

**MOVE INTO ANALYSIS** WEST END £10,500 neg.  
World-wide pharmaceutical group, running IBM 3031/3033 with MVS, CICS and DLI, seek an enthusiastic Analyst/Programmer to move into a pure analysis role. You should have 2-5 years' D.P. experience with a background in IBM COBOL, CICS, DLI, MVS and the ability to use both your technical and liaison skills to their full advantage. Benefits are excellent including L.V.S., subsidised restaurant, life assurance, health care etc. Ref: C/1570

**PROGRAMMER/ANALYSTS** ESSEX c. £9,000  
A leading manufacturing concern with a large IBM installation running under DOS/VSE, VM/CMS, CICS and DLI require 2 more Programmers with an IBM COBOL background and ideally database skills. A positive personality and the ability to move into analysis would be a distinct advantage. CICS training given where necessary. Ref: G/1416

**ANALYST/PROGRAMMER** CITY £12,500  
International company involved with insurance and finance are seeking an Analyst/Programmer. Initially you will be involved with enhancing and upgrading a new system and thereafter working on new projects, from system design through to implementation. This is a good opportunity to improve your analytical skills. The company retain IBM 4300 mainframes running under DOS/VSE and VSAM. Benefits include 4 weeks holidays, L.V.S., S.T.L. and pension scheme. Ref: G/2339

## OTHERS

**HEWLETT PACKARD - COBOL** To £8,500  
Excellent opportunity for a Junior HP 3000 Programmer to further broaden knowledge whilst developing an exciting and sound career. If you can offer 6 months' HP COBOL experience, hopefully but not essentially have utilised IMAGE, VIEW and QUEL, then you would like to hear from us. My client, an international Bank-based concern, is expanding its European division. You will work on highly advanced development projects and be called upon to travel abroad. An excellent salary is offered and the package includes relocation. Ref: A/2477

**SYSTEMS ANALYST** SURREY £11,500 + Mort.  
Large insurance company based in Surrey housing an ICL 2960 are seeking an experienced Analyst with at least 4 years' commercial D.P. experience. You will have spent the last two years working as a Systems Analyst and must be able to demonstrate skills in the finance area, either in pensions, insurance or the accounting sectors. A programming background would be a definite advantage and any machine background would be considered. Benefits include mortgage subsidy, pension scheme and subsidised canteen. Ref: D/2452

**ICL ME29** CITY To £12,000  
A major insurance concern, is currently seeking ME29 Programmers and Analyst/Programmers to join a team engaged mainly with TPS systems. Programmers should have a minimum of 2 years' ICL ME29, IMLS/TPS. Analyst/Programmers must have extensive exposure to TPS, and the ability to work from systems design through to implementation. Call now for further details or write enclosing full C.V. Ref: D/2351/2

**GRADUATES - ANY COBOL** To £9,500  
This prestigious multi-national company utilises the latest technology to administer its manufacturing and commercial projects. To assist in furthering the development of its already highly sophisticated systems an additional Programmer/Analyst is to be appointed. Ideal candidates should possess a degree and have a minimum of 18 months solid commercial COBOL experience. You will be trained on the UNIVAC 1100, and in all relevant database and on-line techniques. The attractive remuneration package includes BUPA membership and a large yearly bonus. Ref: A/1010

**BURROUGHS - SENIOR** To £13,250  
The information service organisation, housing the very latest in Burroughs, large mainframe technology, is currently seeking a lead Programmer to head a team of 8. Such a person must have had a degree of Burroughs mainframe expertise, preferably involving DMS 2, GEMCOS and CANOE. A minimum of 4 years' D.P. experience is essential. Applications are mainly financial data based in Surrey. The site is easily accessible by road or public transport. A generous salary is offered and the benefits include life assurance, 5 weeks holiday and a relocation package. Ref: A/2024

**BASIC / AIMS COBOL** & NEG  
My client a major financial institution based in the centre of London, is due to expand, seeking all levels, 4 DEC PDP expertise from programmers to analysts. This international company has a high degree of development as its background, and in at least 1 of the following: BASIC, AIMS, or COBOL. The package includes profit share, non-contributory pension, P.P.P. and mortgage subsidies. Please write for further details. Ref: A/2020

**PROGRAMMERS AND ANALYSTS** £8-£12,000  
Small, young and dynamic software house in north west London are seeking a Programmer with 12 months' IBM System 38/RPG III experience, to work on site, on a variety of insurance and financial development projects. They also seek an experienced Systems Analyst, capable of visiting client sites, ascertaining requirements, conducting feasibility studies and implementing bespoke and tailor made systems. Full flexibility, any machine background would be acceptable if you have the drive and ambition to succeed. Ref: C/4621

**ANALYST/PROGRAMMER** To £13,000  
One of the most reputable city software houses, specialising in IBM System 38 financial systems, seeks a bright young graduate, with 2-5 years' RPG II/III experience, for an Analyst/Programmer role. This is a well established, stable, and professional company seeking the best people, and offering some of the best perks in return. All of their clients are within a mile of their City based offices. Ref: C/1130

**IBM SYSTEM 38 RPG III** CITY £9-£12,000  
A reputed bureau concern based in the city, with clients in the financial sector who are based within one mile radius of their offices seek additional IBM System 38/RPG III Programmers and Analyst/Programmers. The ideal candidates will enjoy a stimulating and sometimes hectic environment together with a variety of projects. The positions offer opportunity for career development with rapid advancement. Ref: G/2469

**PROGRAMMER** CITY To £10,000  
Bright young Programmer required to fit into a small team developing bright systems for a large financial organisation in the city. They run 2 IBM 4341s with DOS/VSE, VSAM and CICS, and require 18 months' IBM COBOL with some experience of CICS. Drive and ambition are the other essential ingredients. Ref: G/2201

**IBM OPPORTUNITIES** WEST LONDON To £11,000  
There are currently many excellent opportunities in Berkshire, West London and Middlesex for experienced and ambitious programmers and Analyst/Programmers looking for more development involvement. My clients are in the financial, retail, manufacturing and entertainment fields and currently house IBM 4341 kit under both DOS/VSE and MVS with extended use of CICS, DLI, if you can offer 18 months' + solid IBM COBOL experience, preferably with some on-line and/or database knowledge, the scope for career development is extensive. Excellent benefits and training where necessary. Call me for more information. Ref: C/3642

**PROGRAMMER** HERTS £8,500 neg.  
This manufacturing company are reviewing their D.P. requirements. They house an IBM 4331 currently run under DOS/VSE. The successful applicant should have 12 months' IBM COBOL background together with a strong desire to succeed in his or her chosen career, and wish to secure important positions within the progressive organisation. You will be involved with a variety of on-line development projects (training given where necessary), and eventually move into analysis. Ref: G/2472

**UNIVAC - COBOL** To £10,500 + mort.  
This well-known financial organisation based in Kent is looking for an Analyst/Programmer. The position requires 18 months' UNIVAC mainframe COBOL. The company house a UNIVAC 1100 and run real-time Database Systems. The majority of work is development, and you will be trained as necessary on financial applications. The package includes flexible time, 4 weeks' holiday and a subsidised mortgage (where appropriate). Ref: A/1924

**PROGRAMMER** BERKS £7,500  
With a minimum of 12 months ICL COBOL expertise, you could be making an exciting career move by joining this large commercial company, and receive full training on the ICL ME29. Rare opportunity to increase your technical skills, and train in the systems area. Full company benefits package including pension scheme, life assurance and subsidised restaurant. Ref: D/2469

**IBM PL/1** MIDDLESEX & NEGOTIABLE  
Applications are invited from Analyst/Programmers with 2-5 years' IBM PL/1 experience, preferably in a commercial environment. The company is an IBM 4341 running under VM/CMS, DOS/VSE with POWER and using CICS. All new developments are written in PL/1 using on-line facilities. You will be mainly working with development of new systems including production control, order entry, invoicing etc. Excellent company benefits including Pension Scheme, travel allowance and subsidised canteen. Ref: D/2502

**ICL COBOL** S.W. LONDON £8,500 neg.  
Commercial organisation committed to an extensive development program using the latest techniques by a dual ICL 2960 running IMLS, TPMS and VME are expanding their development team by recruiting an experienced Programmer. You will be a member of a team assisting experience of COBOL with VM/IB, knowledge of TP and IMLS desirable. Benefits include excellent pension and training, and flexi hours. Ref: A/1712

**HONEYWELL-COBOL** To £10,500  
This prestigious Essex-based concern is currently recruiting a Senior Analyst/Programmer to join its development team. You will play an integral part in the department involving system design and administration, specification of programmers, user support and training. You will have experience for a minimum of 2 years and have database and on-line expertise, preferably in a Honeywell mainframe environment. Currently my client houses Level 6 GCOS using DMS. An excellent package and salary is offered. Ref: A/1712

**MINI COBOL** MIDDLESEX £8,000 neg.  
Subsidiary company of a large firm of building contractors, currently operating a Philips P4500 mini computer with COBOL is seeking an experienced Analyst/Programmer. The machine runs a range of on-line applications including accounting, records and other small business systems. Candidates should have a minimum of 2 years' experience in a Mini COBOL environment and be capable of working from design to implementation. Working as part of a large organisation, you will receive many company benefits and opportunities to progress your career, with the possibility of transferring to mainframe work. Ref: D/2501

## Planning and Transportation

**Systems Analyst**  
AP5-S01 (£7,791-£9,231 p.a.)

**Technical Programmer**  
AP2-6 (£5,352-£8,325 p.a.)

The Computing Services Group has a wide range of up-to-date equipment linked to the Authority's ICL 2970 and 2980 computers. This includes DRS 30 and 50 micro computers, graph plotter and digitiser. The Group is responsible for providing a comprehensive range of services to the technical and management functions of the Department. The recent advances in technology have significantly increased the demand for computing services and a very wide range of work is in hand.

A Systems Analyst (male or female) is required to assist a team currently involved in developing a waste disposal system using IDMS, a major fleet management system, population projection programmes, and many other systems. At least one year's systems analysis experience is essential preferably using VME/IB, IDMS and COBOL. Please quote reference Dn84.

A Technical Programmer (male or female) is required for a team developing and maintaining civil engineering programmes and giving computing advice to engineers. The main development languages are FORTRAN and BASIC. Some experience within this field is preferred but not essential. It will be given to well qualified applicants who have experience of working in a technical environment, have an aptitude for programming and can communicate clearly with other technical staff. Please quote reference Dn86.

We offer modern air-conditioned offices overlooking the Trent Valley, housing is cheap and we offer generous relocation expenses in appropriate cases.

Why not ring John Hennessey on Nottingham (0662) 524624, ext. 307 to discuss the posts, or write for an application form and job description to the Director of Planning and Transportation, Staffing Section, Trent Bridge House, Fox Road, West Bridgford, Nottingham NG2 8BJ. Closing date: June 16, 1983. Please quote appropriate references when applying. (C802)

**Nottinghamshire County Council**  
County Hall - West Bridgford  
Nottingham NG2 7QP (C802)

## SYSTEMS ANALYST ANALYST/PROGRAMMER

FLOTILLA SHOES LIMITED - a subsidiary of C.J. Clark Limited operating shoe shops trading as Peter Lord, James Baker and Byrne & Duckett.

We need a lively Systems Analyst and an Analyst/Programmer to help us develop new retail systems covering stock control, distribution and accounting. Previous systems analysis experience is essential and knowledge of retailing, data base and on-line systems would be an advantage. We currently operate two Univac 9900 computers with on-line terminals.

Remuneration package includes non-contributory pension scheme, profit sharing scheme, H.T.A. and staff discounts. Please apply for application forms to Mrs Fiona Wood, Personnel Officer, Peter Lord Ltd., P.O. Box 2, Street, Swinnet, Tel: 0458 42131 ext. 21MS.

A DIVISION OF  
**C. & J. Clark Limited**



## FIELD ENGINEERS

£7K-£13K + CAR + O/T + S/B + BUPA +++  
**FIELD/SUPPORT ENGINEERS**

Superb opportunity to join market leader in systems engineering - training in US, full involvement including S/W and comms.

**SITE ENGINEERS**  
London/Middlesex

US manufacturer - new venture with large financial backing - US training - early promotion for enthusiastic engineers.

**FIELD ENGINEERS**  
Manchester/Scotland/Birmingham

200% growth this year has led to new opportunities with this exciting systems house.

Call Keith Wallis now for details of the above on: 01-543 4844 - 048641 2675 (eve.)

**Alltronic People (Agy)**

## COMPUTER PROGRAMMER (PART-TIME)

A Computer Programmer, part-time, with the possibility of becoming full-time in the near future if desired, is needed to work on a number of research projects concerned with medical statistics and epidemiological studies of childhood cancer. Familiarity with one or more of the following would be an advantage: a statistical package, Aigel 68 or Fortran, communication between mainframes and microcomputers. The full-time position is a half-time appointment paid pro-rata on the lower half of the University Research II Scale (£5,550-£9,370 under review) starting as soon as possible. Applications stating previous computing experience and giving the names of referees should be sent to Dr G. J. Draper, Childhood Cancer Research Group, Radcliffe Infirmary, Oxford OX2 0HE. Further details are obtainable on request (phone Oxford 724444). (C804)

## REAL TIME SPECIALISTS Take a sniff at this pot-pourri

8½K to 20K+

The air is heady with the sweet scent of opportunity. Trouble is, we've got a headache trying to think of how best to get across to you the extent of those opportunities. Well here we go.

Users, Manufacturers and Systems Houses (large and small), in London, Home Counties and other parts of England, Ireland, Scotland and Europe.

have urgent requirements for:

Programmers/Analysts, Software Engineers and Designers, Microprocessor Software/Hardware Engineers, Project Leaders/Managers, Consultants (all levels)

with experience of:

DEC PDP/11, VAX, SEL, Data General Mini's, Argus 700, Tandem, Intel, Motorola, Hewlett Packard etc., using high and low level languages.

Command and Control, Radar on Navigation, Simulation, Guided Weapons, Man Machine Interfaces, MASCO, Data Base, Industrial Process Control, Data Acquisition, Instrumentation, Robotics, Telemetry, Telecommunications, Data Comms, Message Switching, Networks, Protocols, Integration, Graphics, Expert Systems, Computers, Operating Systems, Software Tools, ADA, CHILL, UNIX.

You must have at least 3 years' experience in Real Time systems in one of the aforementioned areas of application. Our more unusual requirements are for German speaking Software Engineers to work in Switzerland for indubitably high salaries, and Software Engineers for Dublin, experienced in VAX, COBOL, and a plus would be large Data Base systems.

The aroma is intoxicating. Ring Beryl McLaren, 01-876-9719, any hour of the 24 (week-ends too), you'll get a personal reply, not a recorded message.

01-836 9719

Up to 11:00pm each evening and weekends

**Jupiter**  
Computer Appointments

Specialist recruitment of Industrial, Scientific, Defence and Technical personnel

12-13 Henrietta Street, London WC2 (C803)

microcomputers and peripherals

## Technical Support Co-ordinator

to £12,000 + car West London

Our client has established a leading position in the rapidly growing market place for portable microcomputers and peripherals. As part of a highly respected, international group the company is able to reap the benefits of innovative R & D and a reputation for high quality, reliable engineering. New and innovative products are being regularly launched, while demand has created a rate of growth which has more than doubled turnover each year. The provision of a high standard of technical support is considered to be a fundamental element in consolidating the success of the operation.

The role of Technical Support Co-ordinator is seen as providing a vital range of services to the company's distributors and dealers. This will include:

- Providing engineering guidance and support
- Assisting in training of field engineers
- Producing and distributing technical bulletins and reports
- Providing input for technical manuals
- Providing specialist technical assistance
- Advising on hardware modifications

The need is for a highly competent microcomputer or peripherals engineer, able to communicate in a very effective manner with both customers and contacts. A recognised technical qualification to HND or degree standard is desirable, as is a working knowledge of high and low level languages. The rapid introduction of new and innovative products will demand that the successful applicant is able to work in a fast moving environment and has the ability to grasp new concepts with minimum delay.

This position offers an outstanding career opportunity within an organisation committed to establishing a leading position in Information Technology.

Applications are welcome from men and women who can telephone or write to: T. W. Toms, Peterson Davidson Limited, Elliott House, 28A Devonshire Street, London W1M 1RF. Tel: (01) 486 8991. (C811)

## PDL MANAGEMENT & EXECUTIVE SELECTION FOR HIGH TECHNOLOGY BUSINESS

## Systems Analysts/Application Programmers

# Now choose the right job in the right company: Hambro Life.

Few companies in the UK can match the Hambro Life success story - we're the country's leading unit-linked life assurance company with assets of over £1.8 billion, now looking beyond the life and pensions business into the financial services and expatriate markets.

One reason for this success is an Administration service that is second to none; at the heart of the Administration are flexible integrated computer systems that have enabled us to react swiftly to market and business needs, and made our exciting future plans a real possibility.

So if you've chosen the right career, but now want a growing company offering a secure future which will produce rewarding opportunities for personal development, consider Hambro Life.

- Systems Analysts/Designers
- Application Programmers
- up to £13,000 plus benefits.

Ideally, you'll be a graduate in your twenties, with 2 or 3 years' DP experience.

You will already have had the opportunity to demonstrate that you can work hard to high standards, with the ability to understand the business implications of the work you do.

You'll now be looking for the opportunity and rewards to match your potential - either because you've already outgrown your present company, or else you feel the need for a more productive business-like environment.

## Systems

Your last two or three years will have been spent in a large-scale systems environment, getting involved in system design and implementation reflecting the high qualities we demand, and now looking for a company where computer systems are central to its business.

## Programming

We are a large IBM user offering an environment that allows our programmers to develop into technical roles or into team leadership according to their abilities and preferences. We need application programmers with 2 or 3 years' experience - although we

use PL/1, we will be prepared to retrain COBOL users.

In addition to the attractive salary, our first-class remuneration package includes profit sharing and share option schemes, non-contributory pension, BUPA, and generous assistance with moving to Wiltshire.

For a booklet and application form, send the coupon to Bob Gill, Hambro Life Assurance plc, Hambro Life Centre, Station Road, Swindon, Wiltshire, or phone (0793) 45344 (24 hour answer phone).

Please send me your booklet and application form. I am interested in:

Systems ☐ Programming ☐ (tick box)

Name \_\_\_\_\_

Address \_\_\_\_\_



**ENGLEDOWN ASSOCIATES**  
Computer Personnel Consultants

**01-247 3356 (24 hrs)**

Brushfield House, Brushfield Street  
Bishopsgate, London E1 6AN

Part Of a Technical Services Group Est 1969



## your appointments register

## Programmers

NCR IBM/COBOL to £15K  
to 12/15/18/21/24/27/30/33/36/39/42/45/48/51/54/57/60/63/66/69/72/75/78/81/84/87/90/93/96/99/102/105/108/111/114/117/120/123/126/129/132/135/138/141/144/147/150/153/156/159/162/165/168/171/174/177/180/183/186/189/192/195/198/201/204/207/210/213/216/219/222/225/228/231/234/237/240/243/246/249/252/255/258/261/264/267/270/273/276/279/282/285/288/291/294/297/300/303/306/309/312/315/318/321/324/327/330/333/336/339/342/345/348/351/354/357/360/363/366/369/372/375/378/381/384/387/390/393/396/399/402/405/408/411/414/417/420/423/426/429/432/435/438/441/444/447/450/453/456/459/462/465/468/471/474/477/480/483/486/489/492/495/498/501/504/507/510/513/516/519/522/525/528/531/534/537/540/543/546/549/552/555/558/561/564/567/570/573/576/579/582/585/588/591/594/597/600/603/606/609/612/615/618/621/624/627/630/633/636/639/642/645/648/651/654/657/660/663/666/669/672/675/678/681/684/687/690/693/696/699/702/705/708/711/714/717/720/723/726/729/732/735/738/741/744/747/750/753/756/759/762/765/768/771/774/777/780/783/786/789/792/795/798/801/804/807/810/813/816/819/822/825/828/831/834/837/840/843/846/849/852/855/858/861/864/867/870/873/876/879/882/885/888/891/894/897/900/903/906/909/912/915/918/921/924/927/930/933/936/939/942/945/948/951/954/957/960/963/966/969/972/975/978/981/984/987/990/993/996/999/1002/1005/1008/1011/1014/1017/1020/1023/1026/1029/1032/1035/1038/1041/1044/1047/1050/1053/1056/1059/1062/1065/1068/1071/1074/1077/1080/1083/1086/1089/1092/1095/1098/1101/1104/1107/1110/1113/1116/1119/1122/1125/1128/1131/1134/1137/1140/1143/1146/1149/1152/1155/1158/1161/1164/1167/1170/1173/1176/1179/1182/1185/1188/1191/1194/1197/1200/1203/1206/1209/1212/1215/1218/1221/1224/1227/1230/1233/1236/1239/1242/1245/1248/1251/1254/1257/1260/1263/1266/1269/1272/1275/1278/1281/1284/1287/1290/1293/1296/1299/1302/1305/1308/1311/1314/1317/1320/1323/1326/1329/1332/1335/1338/1341/1344/1347/1350/1353/1356/1359/1362/1365/1368/1371/1374/1377/1380/1383/1386/1389/1392/1395/1398/1401/1404/1407/1410/1413/1416/1419/1422/1425/1428/1431/1434/1437/1440/1443/1446/1449/1452/1455/1458/1461/1464/1467/1470/1473/1476/1479/1482/1485/1488/1491/1494/1497/1500/1503/1506/1509/1512/1515/1518/1521/1524/1527/1530/1533/1536/1539/1542/1545/1548/1551/1554/1557/1560/1563/1566/1569/1572/1575/1578/1581/1584/1587/1590/1593/1596/1599/1602/1605/1608/1611/1614/1617/1620/1623/1626/1629/1632/1635/1638/1641/1644/1647/1650/1653/1656/1659/1662/1665/1668/1671/1674/1677/1680/1683/1686/1689/1692/1695/1698/1701/1704/1707/1710/1713/1716/1719/1722/1725/1728/1731/1734/1737/1740/1743/1746/1749/1752/1755/1758/1761/1764/1767/1770/1773/1776/1779/1782/1785/1788/1791/1794/1797/1800/1803/1806/1809/1812/1815/1818/1821/1824/1827/1830/1833/1836/1839/1842/1845/1848/1851/1854/1857/1860/1863/1866/1869/1872/1875/1878/1881/1884/1887/1890/1893/1896/1899/1902/1905/1908/1911/1914/1917/1920/1923/1926/1929/1932/1935/1938/1941/1944/1947/1950/1953/1956/1959/1962/1965/1968/1971/1974/1977/1980/1983/1986/1989/1992/1995/1998/2001/2004/2007/2010/2013/2016/2019/2022/2025/2028/2031/2034/2037/2040/2043/2046/2049/2052/2055/2058/2061/2064/2067/2070/2073/2076/2079/2082/2085/2088/2091/2094/2097/2100/2103/2106/2109/2112/2115/2118/2121/2124/2127/2130/2133/2136/2139/2142/2145/2148/2151/2154/2157/2160/2163/2166/2169/2172/2175/2178/2181/2184/2187/2190/2193/2196/2199/2202/2205/2208/2211/2214/2217/2220/2223/2226/2229/2232/2235/2238/2241/2244/2247/2250/2253/2256/2259/2262/2265/2268/2271/2274/2277/2280/2283/2286/2289/2292/2295/2298/2301/2304/2307/2310/2313/2316/2319/2322/2325/2328/2331/2334/2337/2340/2343/2346/2349/2352/2355/2358/2361/2364/2367/2370/2373/2376/2379/2382/2385/2388/2391/2394/2397/2400/2403/2406/2409/2412/2415/2418/2421/2424/2427/2430/2433/2436/2439/2442/2445/2448/2451/2454/2457/2460/2463/2466/2469/2472/2475/2478/2481/2484/2487/2490/2493/2496/2499/2502/2505/2508/2511/2514/2517/2520/2523/2526/2529/2532/2535/2538/2541/2544/2547/2550/2553/2556/2559/2562/2565/2568/2571/2574/2577/2580/2583/2586/2589/2592/2595/2598/2601/2604/2607/2610/2613/2616/2619/2622/2625/2628/2631/2634/2637/2640/2643/2646/2649/2652/2655/2658/2661/2664/2667/2670/2673/2676/2679/2682/2685/2688/2691/2694/2697/2700/2703/2706/2709/2712/2715/2718/2721/2724/2727/2730/2733/2736/2739/2742/2745/2748/2751/2754/2757/2760/2763/2766/2769/2772/2775/2778/2781/2784/2787/2790/2793/2796/2799/2802/2805/2808/2811/2814/2817/2820/2823/2826/2829/2832/2835/2838/2841/2844/2847/2850/2853/2856/2859/2862/2865/2868/2871/2874/2877/2880/2883/2886/2889/2892/2895/2898/2901/2904/2907/2910/2913/2916/2919/2922/2925/2928/2931/2934/2937/2940/2943/2946/2949/2952/2955/2958/2961/2964/2967/2970/2973/2976/2979/2982/2985/2988/2991/2994/2997/3000/3003/3006/3009/3012/3015/3018/3021/3024/3027/3030/3033/3036/3039/3042/3045/3048/3051/3054/3057/3060/3063/3066/3069/3072/3075/3078/3081/3084/3087/3090/3093/3096/3099/3102/3105/3108/3111/3114/3117/3120/3123/3126/3129/3132/3135/3138/3141/3144/3147/3150/3153/3156/3159/3162/3165/3168/3171/3174/3177/3180/3183/3186/3189/3192/3195/3198/3201/3204/3207/3210/3213/3216/3219/3222/3225/3228/3231/3234/3237/3240/3243/3246/3249/3252/3255/3258/3261/3264/3267/3270/3273/3276/3279/3282/3285/3288/3291/3294/3297/3300/3303/3306/3309/3312/3315/3318/3321/3324/3327/3330/3333/3336/3339/3342/3345/3348/3351/3354/3357/3360/3363/3366/3369/3372/3375/3378/3381/3384/3387/3390/3393/3396/3399/3402/3405/3408/3411/3414/3417/3420/3423/3426/3429/3432/3435/3438/3441/3444/3447/3450/3453/3456/3459/3462/3465/3468/3471/3474/3477/3480/3483/3486/3489/3492/3495/3498/3501/3504/3507/3510/3513/3516/3519/3522/3525/3528/3531/3534/3537/3540/3543/3546/3549/3552/3555/3558/3561/3564/3567/3570/3573/3576/3579/3582/3585/3588/3591/3594/3597/3600/3603/3606/3609/3612/3615/3618/3621/3624/3627/3630/3633/3636/3639/3642/3645/3648/3651/3654/3657/3660/3663/3666/3669/3672/3675/3678/3681/3684/3687/3690/3693/3696/3699/3702/3705/3708/3711/3714/3717/3720/3723/3726/3729/3732/3735/3738/3741/3744/3747/3750/3753/3756/3759/3762/3765/3768/3771/3774/3777/3780/3783/3786/3789/3792/3795/3798/3801/3804/3807/3810/3813/3816/3819/3822/3825/3828/3831/3834/3837/3840/3843/3846/3849/3852/3855/3858/3861/3864/3867/3870/3873/3876/3879/3882/3885/3888/3891/3894/3897/3900/3903/3906/3909/3912/3915/3918/3921/3924/3927/3930/3933/3936/3939/3942/3945/3948/3951/3954/3957/3960/3963/3966/3969/3972/3975/3978/3981/3984/3987/3990/3993/3996/4000/4003/4006/4009/4012/4015/4018/4021/4024/4027/4030/4033/4036/4039/4042/4045/4048/4051/4054/4057/4060/4063/4066/4069/4072/4075/4078/4081/4084/4087/4090/4093/4096/4099/4102/4105/4108/4111/4114/4117/4120/4123/4126/4129/4132/4135/4138/4141/4144/4147/4150/4153/4156/4159/4162/4165/4168/4171/4174/4177/4180/4183/4186/4189/4192/4195/4198/4201/4204/4207/4210/4213/4216/4219/4222/4225/4228/4231/4234/4237/4240/4243/4246/4249/4252/4255/4258/4261/4264/4267/4270/4273/4276/4279/4282/4285/4288/4291/4294/4297/4300/4303/4306/4309/4312/4315/4318/4321/4324/4327/4330/4333/4336/4339/4342/4345/4348/4351/4354/4357/4360/4363/4366/4369/4372/4375/4378/4381/4384/4387/4390/4393/4396/4399/4402/4405/4408/4411/4414/4417/4420/4423/4426/4429/4432/4435/4438/4441/4444/4447/4450/4453/4456/4459/4462/4465/4468/4471/4474/4477/4480/4483/4486/4489/4492/4495/4498/4501/4504/4507/4510/4513/4516/4519/4522/4525/4528/4531/4534/4537/4540/4543/4546/4549/4552/4555/4558/4561/4564/4567/4570/4573/4576/4579/4582/4585/4588/4591/4594/4597/4600/4603/4606/4609/4612/4615/4618/4621/4624/4627/4630/4633/4636/4639/4642/4645/4648/4651/4654/4657/4660/4663/4666/4669/4672/4675/4678/4681/4684/4687/4690/4693/4696/4699/4702/4705/4708/4711/4714/4717/4720/4723/4726/4729/4732/4735/4738/4741/4744/4747/4750/4753/4756/4759/4762/4765/4768/4771/4774/4777/4780/4783/4786/4789/4792/4795/4798/4801/4804/4807/4810/4813/4816/4819/4822/4825/4828/4831/4834/4837/4840/4843/4846/4849/4852/4855/4858/4861/4864/4867/4870/4873/4876/4879/4882/4885/4888/4891/4894/4897/4900/4903/4906/4909/4912/4915/4918/4921/4924/4927/4930/4933/4936/4939/4942/4945/4948/4951/4954/4957/4960/4963/4966/4969/4972/4975/4978/4981/4984/4987/4990/4993/4996/5000/5003/5006/5009/5012/5015/5018/5021/5024/5027/5030/5033/5036/5039/5042/5045/5048/5051/5054/5057/5060/5063/5066/5069/5072/5075/5078/5081/5084/5087/5090/5093/5096/5099/5102/5105/5108/5111/5114/5117/5120/5123/5126/5129/5132/5135/5138/5141/5144/5147/5150/5153/5156/5159/5162/5165/5168/5171/5174/5177/5180/5183/5186/5189/5192/5195/5198/5201/5204/5207/5210/5213/5216/5219/5222/5225/5228/5231/5234/5237/5240/5243/5246/5249/5252/5255/5258/5261/5264/5267/5270/5273/5276/5279/5282/5285/5288/5291/5294/5297/5300/5303/5306/5309/5312/5315/5318/5321/5324/5327/5330/5333/5336/5339/5342/5345/5348/5351/5354/5357/5360/5363/5366/5369/5372/5375/5378/5381/5384/5387/5390/5393/5396/5399/5402/5405/5408/5411/5414/5417/5420/5423/5426/5429/5432/5435/5438/5441/5444/5447/5450/5453/5456/5459/5462/5465/5468/5471/5474/5477/5480/5483/5486/5489/5492/5495/5498/5501/5504/5507/5510/5513/5516/5519/5522/5525/5528/5531/5534/5537/5540/5543/5546/5549/5552/5555/5558/5561/5564/5567/5570/5573/5576/5579/5582/5585/5588/5591/5594/5597/5600/5603/5606/5609/5612/5615/5618/5621/5624/5627/5630/5633/5636/5639/5642/5645/5648/5651/5654/5657/5660/5663/5666/5669/5672/5675/5678/5681/5684/5687/5690/5693/5696/5699/5702/5705/5708/5711/5714/5717/5720/5723/5726/5729/5732/5735/5738/5741/5744/5747/5750/5753/5756/5759/5762/5765/5768/5771/5774/5777/5780/5783/5786/5789/5792/5795/5798/5801/5804/5807/5810/5813/5816/5819/5822/5825/5828/5831/5834/5837/5840/5843/5846/5849/5852/5855/5858/5861/5864/5867/5870/5873/5876/5879/5882/5885/5888/5891/5894/5897/5900/5903/5906/5909/5912/5915/5918/5921/5924/5927/5930/5933/5936/5939/5942/5945/5948/5951/5954/5957/5960/5963/5966/5969/5972/5975/5978/5981/5984/5987/5990/5993/5996/6000/6003/6006/6009/6012/6015/6018/6021/6024/6027/6030/6033/6036/6039/6042/6045/6048/6051/6054/6057/6060/6063/6066/6069/6072/6075/6078/6081/6084/6087/6090/6093/6096/6099/6102/6105/6108/6111/6114/6117/6120/6123/6126/6129/6132/6135/6138/6141/6144/6147/6150/6153/6156/6159/6162/6165/6168/6171/6174/6177/6180/6183/6186/6189/6192/6195/6198/6201/6204/6207/6210/6213/6216/6219/6222/6225/6228/6231/6234/6237/6240/6243/6246/6249/6252/6255/6258/6261/6264/6267/6270/6273/6276/6279/6282/6285/6288/6291/6294/6297/6300/6303/6306/6309/6312/6315/6318/6321/6324/6327/6330/6333/6336/6339/6342/6345/6348/6351/6354/6357/6360/6363/6366/6369/6372/6375/6378/6381/6384/6387/6390/6393/6396/6399/6402/6405/6408/6411/6414/6417/6420/6423/6426/6429/6432/6435/6438/6441/6444/6447/6450/6453/6456/6459/6462/6465/6468/6471/6474/6477/6480/6483/6486/6489/6492/6495/6498/6501/6504/6507/6510/6513/6516/6519/6522/6525/6528/6531/6534/6537/6540/6543/6546/6549/6552/6555/6558/6561/6564/6567/6570/6573/6576/6579/6582/6585/6588/6591/6594/6597/6600/6603/6606/6609/6612/6615/6618/6621/6624/6627/6630/6633/6636/6639/6642/6645/6648/6651/6654/6657/6660/6663/6666/6669/6672/6675/6678/6681/6684/6687/6690/6693/6696/6699/6702/6705/6708/6711/6714/6717/6720/6723/6726/6729/6732/6735/6738/6741/6744/6747/6750/6753/6756/6759/6762/6765/6768/6771/6774/6777/6780/6783/6786/6789/6792/6795/6798/6801/6804/6807/6810/6813/6816/6819/6822/6825/6828/6831/6834/6837/6840/6843/6846/6849/6852/6855/6858/6861/6864/6867/6870/6873/6876/6879/6882/6885/6888/6891/6894/6897/6900/6903/6906/6909/6912/6915/6918/6921/6924/6927/6930/6933/6936/6939/6942/6945/6948/6951/6954/6957/6960/6963/6966/6969/6972/6975/6978/6981/6984/6987/6990/6993/6996/7000/7003/7006/7009/7012/7015/7018/7021/7024/7027/7030/7033/7036/7039/7042/7045/7048/7051/7054/7057/7060/7063/7066/7069/7072/7075/7078/7081/7084/7087/7090/7093/7096/7099/7102/7105/7108/7111/7114/7117/7120/7123/7126/7129/7132/7135/7138/7141/7144/7147/7150/7153/7156/7159/7162/7165/7168/7171/7174/7177/7180/7183/7186/7189/7192/7195/7198/7201/7204/7207/7210/7213/7216/7219/7222/7225/7228/7231/7234/7237/7240/7243/7246/7249/7252/7255/7258/7261/7264/7267/7270/7273/7276/7279/7282/7285/7288/7291/7294/7297/7300/7303/7306/7309/7312/7315/7318/7321/7324/7327/7330/7333/7336/7339/7342/7345/7348/7351/7354/7357/7360/7363/7366/7369/7372/7375/7378/7381/7384/7387/7390/7393/7396/7399/7402/7405/7408/7411/7414/7417/7420/7423/7426/7429/7432/7435/7438/7441/7444/7447/7450/7453/7456/7459/7462/7465/7468/7471/7474/7477/7480/7483/7486/7489/7492/7495/7498/7501/7504/7507/7510/7513/7516/7519/7522/7525/7528/7531/7534/7537/7540/7543



## LONDON AND THE HOME COUNTIES

### SYSTEMS ANALYST

**BERKSHIRE** £11,000  
Our client is a leading manufacturer of engineered components and is currently engaged on a long term D.P. development plan. Hardware utilised is an ICL 2956 under DSE and the successful candidate will be assessing and reappraising commercial and production systems. This will involve taking managerial responsibility on occasions in addition to involvement with future planning requirements. A flexible approach is required and applicants who could see this environment as their next career move should contact Marshall Chapman as soon as possible for further details.

### MAJOR INSURANCE GROUP

**ANALYST PROGRAMMER** £10,500  
A trouble shooting Analyst Programmer is required by this prestigious employer based in the City. The work will involve significant analysis and a great deal of user contact, therefore good interpersonal skills are required. The position is particularly relevant for candidates with an IBM COBOL background possibly with PL/I as a second language.

### REAL-TIME SOFTWARE

**PROGRAMMERS AND MANAGERS** £8-£18,000  
A number of vacancies exist in and outside London at ALL LEVELS for applicants with real-time experience. Knowledge of any of the following is required: RTL II, RSX-11M, RACINO II, COMMS, CAD/CAM, QEC, MULTICOM, INDUSTRIAL PROCESS CONTROL, ELECTRONICS. As there are several vacancies please contact MARSHALL CHAPMAN for further details.

### OPPORTUNITIES IN PL/I

**ALL LEVELS** to £12,000  
We have taken on a wide range of vacancies for people with PL/I experience recently. Our clients include SOFTWARE HOUSES, CONSULTANCIES, INSURANCE COMPANIES and INVESTMENT MANAGEMENT CONCERNS with locations in LONDON, HERTS, SURREY, MIDDLESEX and SUSSEX. If you are looking for a change of environment call TARGA immediately.



## Targa Computer Recruitment

6 Liverpool Street London EC2M 7NH

Monach House Bristol Street Birmingham B5 7AS

Telephone 01-283 9941 Telex 25851

Telephone 021-622 2045 Telex 334237

## MIDLANDS

### TECHNICAL PROGRAMMERS

**COVENTRY** HIGH NEGOTIABLE SALARY  
One of our largest clients is looking to considerably expand its technical and system programmers division. We are therefore looking for programmers and analysts with good FORTRAN or PASCAL knowledge and experience in CAD/CAM, communications or CASE senior positions.

### SOFTWARE HOUSE

**COVENTRY** DEVELOPMENT STAFF £6,000  
If you have substantial experience of BASIC or BASIC+, working on any of the small business machines, this up and coming firm with an overflowing order book is ideal for you. Security, variety and good benefits are available as well as the opportunity to contribute to the growth of an expanding company.

### MIDLANDS BASED

**BUSINESS CONSULTANTS** £10,000  
If you have RPG II or III experience and wish to move into consultancy, the ideal time is now. This large and reputable software house is looking for consultants preferably with experience on the IBM GSD ranges of machines to work on a wide variety of interesting applications.

### FINANCIAL/BUSINESS ANALYST

**E. MIDLANDS** £11,000  
The group computing function of a large manufacturing concern is looking for an experienced Systems Analyst. A minimum of five years' overall experience with about two years spent in Analysis, preferably with some payroll experience would be ideal.

For a discussion outside of office hours, phone 0787 280748 or 01-995 3815. Messages regarding Midlands-based positions can be left on 021-622 3838.

### BANKING BENEFITS

**SENIOR PROGRAMMERS** £11,500  
We need 4/5 PROGRAMMERS and SENIOR PROGRAMMERS who are ready to expand their experience into the Banking environment. The financial benefits are, as ever, very attractive and development work is another big feature of these appointments. We are looking for IBM COBOL together with use of CICS and/or DL/I with Program Design a feature of the more senior positions.

### INSURANCE SYSTEMS

**SENIOR ANALYST** £14,000  
Our clients are an expanding City-based insurance company. A SENIOR SYSTEMS ANALYST is required to take a key role in their systems development plans. While experience of Insurance/Reinsurance applications is useful, candidates must have been involved in the design of On-Line/Database systems in an IBM environment. BENEFITS include MORTGAGE and TRAVEL assistance.

### GSD ANALYST PROGRAMMERS AND PROJECT LEADERS

**to £14,000 + CAR**  
Due to a policy of carefully controlled growth, our clients require a number of additional members of staff in 1981. They have been extremely successful in building systems based on the IBM S34 and S38 and require experience with this range at all levels. A superb BENEFITS package, PRESTIGE offices, and great scope for advancement are offered.

### MANUFACTURER

**LONDON BASED** £11,000  
A leading manufacturer in the DATA PROCESSING industry is URGENTLY seeking a mature ANALYST PROGRAMMER to undertake PROJECT MANAGEMENT RESPONSIBILITY. With major development work being the area under consideration, candidates will need to demonstrate very good COMMERCIAL ANALYSIS SKILLS, major project completion from start to finish and DEC, HP, PRIME or other mini experience. An interest in office automation and good communication skills are also an advantage. Attractive BENEFITS and excellent CAREER prospects.

## ICL OPPORTUNITIES — BERKSHIRE

Our Client, a major manufacturing company and market leader in its field is seeking further systems and programming professionals to enhance its development team. They have a heavy investment in their Data Processing facilities currently based on ICL 2956 and ME29 equipment. They are about to embark on a five-year development plan, expanding computerisation of their commercial and production control systems and urgently require the following key personnel.

### SYSTEMS ANALYST c. £11,000

To take a leading role in the design and implementation of new developments and their interfaces with existing systems. You should have two-three years' proven analysis and design experience, preferably with a programming background and be confident with users at all levels.

### ANALYST/PROGRAMMER c. £9,500

Working directly with user groups to implement, write and support smaller systems. You should have three years' ICL Cobol including one year as an Analyst/Programmer.

### PROGRAMMER c. £7,500

A minimum of one year's ICL Cobol is required with a strong desire to progress towards Analysis.

All positions carry a company benefits package which includes bonus, pension scheme, free life assurance and five weeks' annual holiday.

For further details about these challenging and rewarding positions contact Chris Smith at Apex.

Apex Computer Recruitment Ltd.

404 4821

**Apex**

London Office:  
59 Grays Inn Road,  
London WC1X 8TL  
Tel: 01-404 4821.

Brussels Office:  
Rue Gatti de Gamond,  
24, Uccle 1180 Brussels.  
Tel: 010 322 377 4193.

## SYSTEMS ANALYSTS

### Rural Bucks to £10,000

A new positive approach to computing has meant a massive re-orientation towards DP within this highly profitable national service organisation. Having recently migrated to Univac 1100's they are now looking for two Analysts to work on the progressive development of existing database systems.

You will be working in a project team enhancing the major systems to ensure that they keep pace with new systems developments and user requirements. It is a continuous development environment and you will have considerable contact with both user and other development teams.

Aged between 23 and 30 you should have had two years programming experience followed by at least a year in systems analysis which should have included involvement with a major implementation. Hands-on Univac 1100 experience is preferred but good mainframe knowledge is acceptable. Salary will be negotiable to £10,000 and will be accompanied by a benefits package which includes 22 days holiday, free life assurance, a 1.5% contributory pension scheme, discounted company purchases and a subsidised staff canteen. Assistance with relocation may be given where relevant.

Call David Mason Johns today on 01-948 5922 (24 hours answering service) or 01-747 0969 (evenings and weekends) for an applicant form, alternatively write to him at the above address. Please quote Ref. A8346/CW.

**KPG**  
01-948 5922

KPG Computer Support  
Services Limited  
Cobden House, Park Lane,  
Richmond, Surrey, TW9 2RA



## New Senior Appointments in Technical Software

Since the earliest days of Electronic Warfare, we at MEL have been numbered among the technology pioneers. Today this means the routine application of the very latest software both to the design and development of components and systems, and to the actual management of complete systems in the field.

Major contracts, from both military and civil clients throughout the world, mean we now need to add a small number of personnel of the highest calibre to our Technical Software Department, here in West Sussex: new appointments offering not only the opportunity to gain an exceptional level of professional expertise at the very forefront of software development, but also to relocate to an attractive area just 20 miles from London, yet only 30 minutes' drive from the South Coast.

### CAD Specialist and CAD Engineer

To advise on the selection and support of existing and future CAD program for use both on internal DEC VAX 11/780s and by external bureaux for applications such as: PCB design, microwave component design, antennae design, circuit analysis, logic simulation, stress analysis and mechanical draughting. The Engineer will assist the CAD Specialist in all these activities. Qualifications for both appointments: a degree in Physics or Electrical/Electronic Engineering, experience in the development of electronic equipment, specific knowledge of some of the areas mentioned and programming ability in FORTRAN and other languages. Refs. TS1 and TS2.

### Cross Software Support Specialist

To advise on, implement and support cross software such as Coral, RTL2, Context and cross assemblers running mainly on DEC VAX 11/780s and software support tools such as Ada cross compilers, APSS, automatic documentation, configuration control software etc.

Qualifications: degree in Computer Science, Maths, Physics or Electronic Engineering, plus in-depth understanding of compilers and other support software as specified. Ref. TS3.

### Senior Software Design Engineer

To work on the software system design of complex defence systems, particularly EW systems. Qualifications: degree in Electronic Engineering or Physics plus several years' experience in the development of software for EW systems, some of it at team leader level. Familiarity with formal documentation, RTL2, Coral and mascot. Ref. TS4.

### Senior Software Engineer

To develop software for complex defence systems, particularly EW systems. Qualifications: degree in Electronic Engineering or Physics plus several years' experience in EW software development. Familiarity with formal documentation, RTL2, Coral and mascot. Ref. TS5.

### DEC VAX Operations Specialist

To provide consultancy services for the Technical Software team in the running of three or more DEC VAX 11/780s and a DEC PDP 11/44. Additionally, to introduce enhancements and support systems software. Qualifications: a technical/numerate degree plus experience of supporting DEC VAX computers in a similar environment. Ref. TS6.

Naturally each of these key appointments will command a highly attractive salary and benefits package, including generous expenses for relocation, while the prospects for further career development, both within MEL and within the Philips Group of Companies, are excellent. To arrange an early discussion, please contact: Sheila Clarke, MEL, Manor Royal, Crawley, Sussex. Tel: Crawley 28787 Ext. 873.

## DATABASE CONTROLLER

TO £16,000

### YOU

Practical experience from implementing at least one significant DB project and of IMS are essential. You should be confident that your technical, managerial and people skills will enable you to obtain the most effective use of resources.

### THE JOB

This is a new and senior position to lead this key function for coordinating, applying and expanding the use of database technology. The first of a series of large DB projects is about to be developed for a major operating company.

For an informal discussion please phone Bob Tyrrell on Bedford (0234) 56233 daytime or 02806 322 evenings/weekends. Alternatively send brief career details to me at Granada Computer Services, PO Box 31, Amphil Road, Bedford MK42 9QQ.

**GRANADA**  
Computer Services

## PROGRAMMERS: IF YOU'VE GOT THE GET UP AND GO, YOU COULD GO UP AND GET £13,000

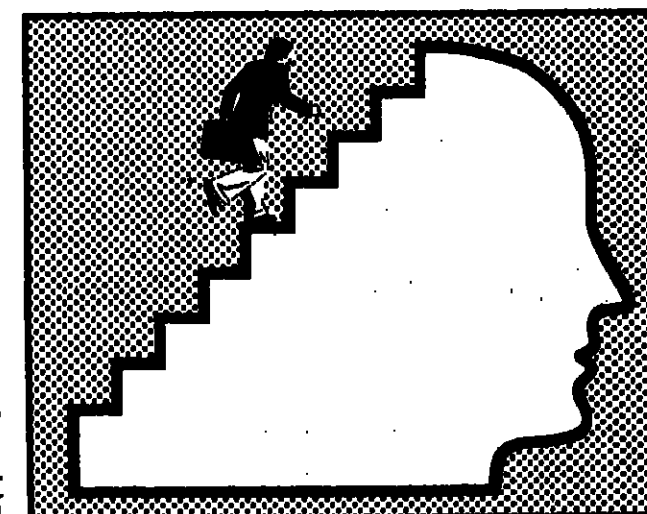
Comshare are looking for computer programmers and Senior programmers to work in Wakefield, Leicester and London.

On paper you'll need to be aged 21-31, with a degree, preferably in Computer Science or something not far off, and a pretty sound background in programming.

However, above and beyond that you'll need tons of enthusiasm and boundless energy if you're going to keep up with a young expanding company of Comshare's stature.

You'll be working in our Product Planning and Development division, and will be responsible for the design, coding and testing of the software products that make up Comshare's Decision Support Systems.

The products encompass financial planning, business modelling, data management, data analysis and graphics, and are designed for micros, minis, mainframes and Comshare's own Worldwide Timesharing Network.



We'll give you full training in software development methodologies and, if it's needed, in programming languages such as Pascal.

You'll be pleased to hear we'll also give you a good salary.

Depending on experience it'll be up to £13,000, plus all the usual fringe benefits.

And, don't forget, on top of that there are the almost limitless opportunities for growth and job diversification that only a growing company like Comshare can offer.

Ring Helen Fallows on 0533 545 242 or write to her at Comshare Limited, James

House, 55 Welford Road, Leicester LE2 7AE and she'll put you in touch with someone who can tell you more.

**COMSHARE**

Making the computer make sense.

OFFICES IN LONDON, ABERDEEN, BELFAST, BIRMINGHAM, BRISTOL, DUBLIN, EDINBURGH, HARROGATE, LEICESTER, MANCHESTER, WAKEFIELD, WINCHESTER, BELGIUM, FRANCE, GERMANY, HOLLAND, CANADA, UNITED STATES, JAPAN.



# Hardware/Software Engineers

## NEW MALDEN

One of this country's leading Systems Houses, specialising in Advanced Computerised Defence Systems, have recently established a base in New Malden.

This new location, a few minutes from the A3 and New Malden Station, opens up new and exciting career opportunities for qualified Engineers in the Hardware and Software Industry.

Our client is interested in candidates with Defence Systems experience and some of their immediate requirements include:

### 1. MICROPROCESSOR ENGINEERS

4/5 years' experience of building micro based systems.

### 2. SIGNAL PROCESSING ANALYST

A degree plus 2/3 years' experience of Signal Processing. Experience with Floating Point Systems equipment would be a considerable advantage.

### 3. DIGITAL ELECTRONICS ENGINEER

Electronics Engineering degree or equivalent, one or two years' practical experience with exposure to software.

### 4. TRIALS ANALYST ENGINEER

Degree or equivalent, 2 years' experience of Fortran/Data Handling.

### 5. TEST TECHNICIAN

Experience in assembly and test of Digital Electronic Subsystems.

### 6. RELIABILITY TECHNICIAN CLERK

ONG/HND, Services/Engineering background, fault analysis experience.

For further information about our Client please telephone 01-399 9183 or write enclosing a C.V. to:  
DATAMATICS, FREEPOST, SURBITON, SURREY KT6 5BR

£8,000-£14,000

## PROJECT MANAGER/ TECHNICAL SUPPORT MANAGER HONG KONG

HK\$156,000 TAX FREE  
+ COMPANY APARTMENT

VAX/VMS Expertise

Automated Systems is one of the Crown Colony's most dynamic and professional systems houses with a list of clients that includes the most prestigious international companies and government departments. As a highly successful DEC o.e.m. the company is progressively moving into the VAX market and operating at the forefront of VAX technology.

The appointed technical support manager will be involved in all software services as they relate to customers. He will take responsibility for all major projects and the support of the sales force. He will also run the VMS training courses, tune the software to use all VMS facilities and establish VMS-related services such as in-house bureaux. Thus the position is seen as both fascinating and highly demanding. A certain amount of travel within the region can be expected.

Hong Kong is one of the most exciting markets in the world and works at a very fast pace. Thus the successful candidate will be commercially aware, resourceful and resilient with a flair for lateral thinking. He will have in-depth knowledge of VMS and other VAX system software and will continually keep abreast of all developments in this area.

In return for these considerable skills the successful candidate will receive a renewable two-year contract, a tax-free salary, an apartment with all basic furnishings and an allowance for relocation. He will take up a vital high-profile position with one of Asia's most go-ahead computer systems organisations and will continue his involvement with technology's leading edge. To learn more contact James De Siun on 01-938 1804. Out of hours you'll reach him on 01-373 1496.

Specialist Recruitment Consultants

**IPP International**  
IPP International, 20 Kensington Church Street, London W8 4EP Telex 229161

(3946)

## APPLICATIONS PROGRAMMERS Rural Bucks to £8,700

Following a migration to Univac 1100 hardware this major service organisation is currently looking for two young Cobol Programmers to work on second generation programme development.

You will join a team of programmers who work in a "pool" environment which means that you will gain a wide range of programming experience covering accounting, stock control and rental applications. The company has a policy of using both package and bespoke software solutions and you will therefore work with external suppliers as well as users. Previous exposure to database orientated systems is an advantage.

You should have at least 18 months Cobol programming experience in a mainframe environment. Career progression into technical support or systems analysis is available for successful candidates.

Salary will be negotiable according to age and experience but will be accompanied by a comprehensive benefits package which includes 22 days holidays.

Call David Mason Johns today on 01-948 5922 (24 hour answering service) or 01-747 0969 (evenings and weekends) for an application form, alternatively write to him at the above address. Please quote Ref. P8346/CW.

**KPG**  
01-948 5922

KPG Computer Support  
Services Limited  
Cobden House, Park Lane,  
Richmond, Surrey, TW9 2RA



# CONTRACTS

**IBM**  
ADABAS PROGRAMMERS  
SYSTEM 38 RPG III ANALYST PROGRAMMERS  
OS CICS JCL PROGRAMMERS  
IMS DB/DC ANALYST PROGRAMMERS  
IMS DATABASE ADMINISTRATOR  
8100 DPCX MACRO ASSEMBLER PROGRAMMERS  
FILM DISTRIBUTION SYSTEMS ANALYST AND DESIGNERS

**ICL**  
DRS CIS COBOL PROGRAMMERS  
DRS CP/M COBOL PROGRAMMERS  
VMEB SYSTEMS PROGRAMMERS  
IDMS PROGRAMMERS, ANALYST PROGRAMMERS, SYSTEMS DESIGNERS VARIOUS  
SYSTEM 25 ASSEMBLER PROGRAMMERS  
DATA ANALYSTS  
VME/SIL ANALYST PROGRAMMERS

**OTHER**  
VAX CORAL 66 PROGRAMMERS  
RSX II MACRO II WITH DECNET SYSTEM DESIGNER/PROGRAMMER  
RSX II MACRO II WITH DECNET PROGRAMMER  
TANDEM NS 2 COBOL PROGRAMMER  
PRIME COBOL SYSTEMS DESIGNERS  
HP3000 QUIZ COBOL ANALYST/PROGRAMMERS  
VENTEK DATAPOINT DATABUS PROGRAMMER

**KUWAIT - URGENT**  
PRIME COBOL TP PROGRAMMERS  
PRIME INFORMATION, TRANSACT OR MIDAS SYSTEMS DESIGNERS  
ICL 2900 VMEB TP ANALYST/PROGRAMMERS

**SAN FRANCISCO**  
CICS, VM/CMS, IDMS/DC, IMS ANALYST/PROGRAMMER  
Permanent and Contract. Minimum four years' experience. Bay area.

**BRUSSELS - URGENT**  
SEL32 MPX ASSEMBLER/FORTRAN PROGRAMMERS + SYSTEMS PROGRAMMERS  
RSX II MACRO II ANALYST PROGRAMMERS  
MOTOROLA 68000 ASSEMBLER PROGRAMMERS

**MICROS**  
Z108 MC 2 CP/M COBOL PROGRAMMERS  
DRS CP/M COBOL PROGRAMMERS  
DRS CIS COBOL PROGRAMMERS

**Comac**  
**Contractors**

Computer Appointments & Contracts Ltd

27 Town Centre, Hatfield, Herts. Telephone Hatfield (07072) 65699 or 69889. (24 hour answering service)

(3951)

## Survive the recession

Smiths Industries Aerospace & Defence Systems  
Developed circuit design skills. Experience of aircraft dynamics, control, navigation, display and weapon aiming systems, and in performance assessments using these models and other criteria. Your background should include the use of FORTRAN on VAX 11/780 and, preferably, a knowledge of aerodynamics, modern filter theory and statistics.

**Mathematical Modeller (or Analyst - control systems)**

You will join a team preparing high integrity models of aircraft dynamics, control, navigation, display and weapon aiming systems, and in performance assessments using these models and other criteria. Your background should include the use of FORTRAN on VAX 11/780 and, preferably, a knowledge of aerodynamics, modern filter theory and statistics.

**Systems Design Engineers**

You will exploit the use of microprocessor technology in real time applications for aircraft navigation, display, weapon aiming and control systems, with some experimental systems and software work.

Only in exceptional circumstances will candidates with less than 2 years' relevant experience be considered. In return we offer a very competitive salary supported by a wide range of fringe benefits.

Please write with full details to: Duncan Westerman, Personnel Manager, at the address below.

**SMITHS INDUSTRIES AEROSPACE & DEFENCE SYSTEMS COMPANY**  
Smiths Industries plc, Bishop Cleeve, Cheltenham, Glos. GL52 4SF

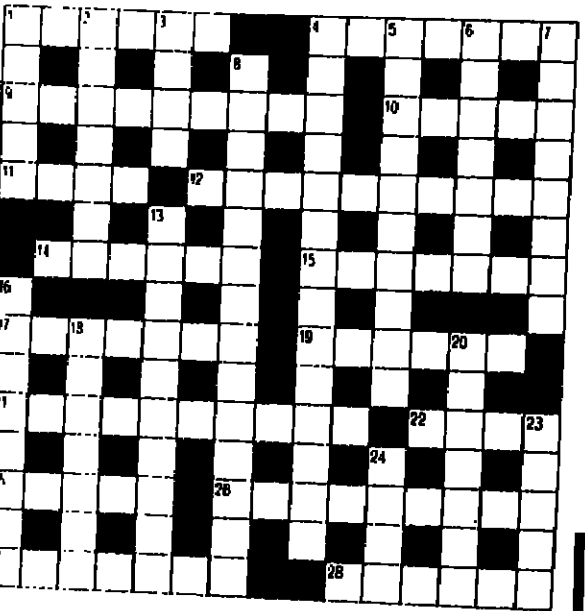


## CROSSWORD

## Prize Crossword No 41

Compiled by Alex Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, June 10. Please use a ballpoint pen to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..... (Miss, Mrs, Ms, Mr)

Address.....

Telephone.....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed.....Date.....

## ACROSS

1. Walk awkwardly in pit, carrying books (6)
4. Opportunities derived from rich ancestors (7)
- 9, 10. Floor at which couple gets sweet for very low cost (5-4,5)
11. One gets attention at home with doctor about (4)
12. Didn't cook so much around the North, lacking inates (10)
14. See me take flight, crying like an animal (6)
15. Sees an unexpected in a piece of mosaic (7)
17. Doctor that's grabbed by worker, going round (7)
19. Like a monster, making knight go back - horrific (4)
- 21, 22. O'd fan, fuddled with ale, is afraid to be ignored (4,4,4)
25. Once I join the French, I'm an outcast (5)
26. Arrive casually with list, one containing many names? (4,5)
27. Chup about to deposit one is Indonesian, possibly (7)
28. Dad's bird is useless through senility (4,2)

## DOWN

1. Nonsense is all right in humour - not half! (5)
2. I'm a goblin, and have tucked into the cheese (7)
3. Large amount of water needed for reddish pigment (4)
4. Meeting an associate in traditional fashion (14)
5. It's a house plant - part is said to grow wild (10)
6. Bent, without anger, an Egyptian capitalist, as it were (7)
7. He's a sower, and seems dizzy (8)
8. Most suitable for ships of the Wavy Navy? (10,4)
13. Irritatingly early, clutching a rambling rose (10)
16. Henry's loud call for a short break from studies (4-4)
18. Oxford college dance - look, I will come up (7)
20. Under gets a disapproving noise among the group (3-4)
23. An ugly object, filmsy, let out (5)
24. Strike a priest (4)

## RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

## FOR CLASSIFIED ADVERTISING USE

## DIRECT LINES

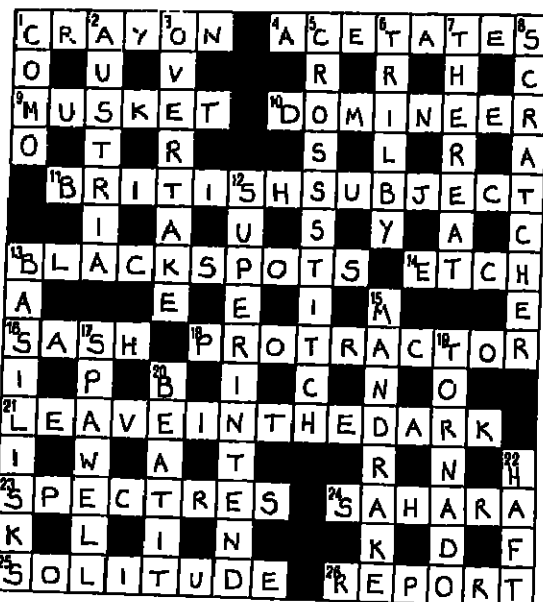
## RECRUITMENT CONSULTANCIES

(01) 661 8787

## DIRECT ADVERTISEMENTS

(01) 661 8080

## Solution to Prize Crossword No 40



This month's £10 first prize goes to Karen Davis, a regional field support group manager at Hewlett-Packard in Wokingham. Prizes of £5 each are on their way to John Hill, marketing manager at NCR in London, and to John Compton, an analyst/programmer with Hayward-Tyler in Luton.

## MICRO COMPUTING ANALYST

## CROYDON

Salary up to £9,500 p.a.

UAPT the leader in the finance and business service sector is at the forefront of information technology extensively using main frame and micro computers.

A vacancy has arisen for a micro computing analyst to specialise in the technical and design aspects of the personal computing environment. The position requires someone with the ability to liaise with in-house users who can develop and provide sound support to the business systems team. Growth is foreseen in the application of micro computers alongside a large main frame.

Relevant experience of BASIC and micro computer systems such as DMS or D. Base II is required.

There are likely to be career opportunities in project management and general management for the right candidate.

If interested please write with brief c.v. to:  
Mrs Maureen Kilminster, Personnel Manager  
UAPT, Zodiak House, 163 London Road, Croydon, Surrey.

## THE OPEN UNIVERSITY

## CYCLOPS GROUP - PROJECT OFFICER (COMPUTING)

A Project Officer is required to work on software implementation of colour graphics and videodata terminal systems on the BBC Microcomputer. The work will also include interacting these systems to existing videodata and graphics creation systems.

Candidates should be graduates with experience of working at assembler level, preferably on real-time applications. They should have a working knowledge of raster graphics and videodata.

Salary will be in the range of £8,376-£11,108 on the Project Officer (1A) scale, depending on age, qualifications and experience. A three-year appointment will be made to the post.

Conditions of service include six weeks' annual holiday plus on-call sports and social facilities. Further particulars and an application form can be obtained from Mrs J. Moffat, Faculty of Technology (B6671), The Open University, Walton Hall, Milton Keynes MK7 5AA. Telephone Milton Keynes (0908) 853941 or there is a 24-hour answering service on Milton Keynes (0908) 853988.

Closing date for applications: 15 June, 1983.

## SALES EXECUTIVE CAD/CAM

Applied Research of Cambridge requires an experienced Sales Executive to join its expanding Marketing and Sales team.

Based in the Bristol area, the position covers total responsibility for the Southern Counties, Wales and the West Country.

The Company's main products embrace a wide application range including construction and industrial markets.

The position carries a good basic salary plus commission, 2-life company car and excellent benefits package.

Applications, in writing only, to:  
Personnel Department  
APPLIED RESEARCH OF CAMBRIDGE LTD.  
Wallingford House, East Road  
Cambridge CB1 1BN

DATABASE DESIGNERS  
ANALYSTS  
PROGRAMMERS

We wish to recruit a number of experienced computer professionals for Tangent's Systems Programming Support Team. Enquiries will be welcomed from both contract or permanent staff and we can offer attractive opportunities and excellent remuneration to all successful candidates. Current requirements include the following:

DEC/VAX, COBOL	Database Designer, Consultant	Essex/Surrey
NOMAD COBOL, DL/1 some CICS ASSEMBLER/GRAPHICS	Database Designer Senior Programmers Mini/Micro Programmers	London Home Counties Home Counties
CICS/COBOL/MICROS RPG11/111, S34/S38 ADF & RMS/DC HP3000, + or Stock Control Exp	Senior Programmer Programmer/Analyst Programmer/Analyst Analysts	London Kent/Surrey London Bucks
Large Integrated Systems Exp	Analysts	Wiltshire
Natural & Adabas HP3000, COBOL DEC/VAX, PASCAL	Programmers Programmer/Analyst Programmer	London Scotland Home Counties

Please contact: TANGENT COMPUTER SERVICES LTD.  
102/108 South Street  
Romford  
Essex RM1 1RX  
Tel: Romford (0708) 750201

tangent  
SUCCESS IN THE SOFTWARE WORLD

Microdata Information Systems Ltd., formerly CMC, are the UK subsidiary of the Microdata Corporation a McDonnell Douglas Company. In 1982 turnover was £35m—for the first quarter of 1983 deliveries were up 56% and orders 23%.

To continue growth and achieve substantial progress, we must now attract ambitious professionals to join us at this exciting stage of our development.

Based at Hemel Hempstead we require the following:

ANALYST PROGRAMMERS  
2 years experience £8500-£11000

You will be working for our in-house data processing function to form a small team involved in system design, programming and implementation in a wide range of commercial applications, accounts, personnel and stock control etc., using Microdata Reality and Sequoia Minis.

Microdata is a young, informal company, with few pre-conceived ideas. Successful candidates will be able to make a significant contribution to the success of the company.

The remuneration package and conditions of employment are excellent, including a superior pension scheme, company bonus and generous relocation expenses.

Please write with comprehensive career details or telephone for an application form to: John Paterson, Personnel Manager

## Microdata Information Systems Limited

Maylands House, Maylands Avenue  
Hemel Hempstead, Herts HP2 4RL  
Tel: (0442) 61266, Telex: 825968

SMR  
Sales & Marketing Recruiters Ltd

A Sales and Marketing Services Company

## SALES EXECUTIVES!

We Have The Answer  
— Do You Have The Question?

The answer for many salespeople who wish to advance their career is to move to a progressive company that has the kind of opportunities available from our client:

- \* Extensive product range includes minis, micros, 'electronic office' and distributed systems.
- \* New, state-of-the-art products offer considerable sales potential
- \* Advancement into management is assured for those who consistently achieve sales success.
- \* Attractive remuneration package provides both high earnings and other material rewards
- \* Many installed systems exist throughout Europe.
- \* Technical support is accomplished and substantial
- \* 100% Club provides opportunities for overseas travel
- \* The company is well respected for its technical excellence and innovation.
- \* It is very much a 'salesman's company'.
- \* Job opportunities are available in

## LONDON &amp; SOUTH, MIDLANDS, SOUTH WEST, NORTH

£24,000

The question is, do you have the appropriate qualities and experience to satisfy the needs of our client? Do you have —

- \* The ability to negotiate knowledgeably at director or DPM levels?
- \* Ambition, self-motivation and sound personal organisation?
- \* Significant experience of selling computer systems or equipment?
- \* The flexibility to handle both new and existing accounts?
- \* The perception to qualify prospects effectively?
- \* The experience and imagination to create an imaginative selling strategy?
- \* A proven ability to achieve sales success?

If you are a salesperson and would like to discuss the possibilities of a successful sales career with us, please contact Alasdair Scott in London or Roger Dodd in Lichfield, quoting reference WSC/053 and we will do the rest.

## LONDON &amp; SOUTH MIDLANDS &amp; NORTH

29 Oxford Street  
London W1. (01) 734 9776

Cathedral House, Beacon Street  
Lichfield, Staffs. (05432) 56612

Answering Service after 6 pm and weekends  
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

## CHALLENGING OPPORTUNITY WITH LEADING BRITISH MICRO MANUFACTURER

GROUP LEADER  
(LABORATORY PRODUCT DEVELOPMENT)

£12K to £17K  
(DEPENDENT ON EXPERIENCE) OXFORD-BASED

This is a challenging new opportunity to spear-head our product development programme in the laboratory/instrumentation market.

Research Machines has already built up an impressive user base for its computer systems across the spectrum of scientific research applications. Our corporate plan now calls for a major expansion in this sector through the development of innovative microcomputer-based hardware and software products using state of the art technology.

Your job will be to create and lead the small team responsible for this important development work. In particular you will:

- \* Support the Marketing Department in developing product strategy and defining new products.
- \* Specify, plan, and manage product development projects to rigorous standards of performance, quality, and time scale.
- \* Build up and manage a group of professional

hardware and software engineers; ☐ Provide technical leadership and innovative thinking on product design.

The successful applicant for this demanding post, therefore, will probably have:

- \* Wide appreciation of laboratory/instrumentation applications.
- \* Demonstrable project leadership experience (including successful completion of major development projects using microprocessor-based hardware and software).
- \* At least five years in product development.

We offer a particularly attractive range of benefits, including good salary; 25 days paid holiday; free BUPA, life and disability insurance; pension scheme; and generous help with relocation expenses to this area.

If you are interested in this vacancy please contact Polly Keane on Oxford (0865) 726136 or write for an application form, quoting reference: L/P/CW6.

RESEARCH MACHINES  
MICROCOMPUTER SYSTEMS

RESEARCH MACHINES LTD, Mill Street, Oxford OX1 1BW, Tel: (01865) 726136

## Re-advertisement

## Regional Computing Services Officer

Scale 27 £12,958 - £16,524

Health Authorities in the Oxford Region (covering Oxfordshire, Buckinghamshire, Berkshire and Northamptonshire) are engaged upon the implementation of an advanced computing strategy in conjunction with ICL.

The Oxford Regional Health Authority provides computing facilities for hospitals and other health care services throughout the Region and has on site a Regional Computer Unit providing a bureau service covering a wide variety of applications including accounting and other health service systems as well as an advisory service to many functions.

The Officer appointed will report directly to the Regional Administrator, advise the Regional Team of Officers and the Regional Computer Policy Committee on computer policies and plans, and co-ordinate and develop computing activities within the Region. He/she will have had senior experience in the computing field, demonstrate a high level of management ability and, ideally, will possess a degree and/or suitable professional qualification. Experience or knowledge of health service computing would be an advantage.

Candidates wishing to discuss the post informally should ring the Regional Administrator, Mr P M Cooke (0865) 49661 Ext: 208 or HO Personnel Officer, Miss J Mitchell Ext: 246.

Further details and an application form available (quoting Ref: V54/83) from The Recruitment Officer, Oxford Regional Health Authority, Old Road, Headington, Oxford OX3 7LP. Telephone: (0865) 64861 Ext: 244/228.

Closing Date 17th June 1983.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disap-

pointment at 88% which gives him £17,000. The fact is the man in the South has been creaming off those big prospects that required the least effort, whereas the man in the North has been working his butt off to re-establish the credibility of the company and its products and close the few deals that were available in less than the anticipated selling cycle.

Such a circumstance is a travesty, the very opposite of what performance-related income is about.

Every salesman is entitled to the occasional "bluebird", but each territory must be given its individual objectives according to its potential and the salesman rewarded relative to his achievement of such goals.

While this should take into account the inevitable "learning curve" of the new recruit, it should not discriminate between the capabilities of established salespeople.

The best way to lose your top salesman is to keep saddling him with a bigger and bigger sales target just because he keeps "getting his numbers" while those at the other end of the performance scale get an easy ride just because they have never been guilty of outstanding money in only a minority of salesmen.

Incentive to achieve must surely be the primary purpose of performance-related income. This cannot be brought about by expecting different salespeople in different territories to bring in the same results.

Many companies set a sales target which is the same for all sales areas, often arrived at by dividing the national sales target by the number of people in the sales team. What a nonsense! Sales targets must be set in accordance with the capability of the individual salesman and the potential of the territory.

One particularly common situation is best described by way of example: Salesman 'A' has a Central London territory which not only contains many prospective clients but also several established large-scale users. Salesman 'B' has been with the company for less than a year and is responsible for West Yorkshire, which is not only suffering considerably from the effects of economic recession but prior to his arrival on territory had been without a salesman for over six months.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disap-

SALES BIT  
Quality of Management — 54

## Calculating the rewards of success

LAST week I discussed the implications of performance-related income and how much salespeople should be paid. This week I would like to concentrate on the various ways in which the rewards of sales success can be calculated.

Few employees base their remuneration of salespeople on a detailed evaluation of the fundamental needs of the employee, the real demands of the job and the considered objectives of the company. What kind of salesperson would be ideal for the job? What experience and formal qualifications are necessary? What type of person would best fit our type of organisation? Do we need someone who could eventually control the total sales operation? What level of reward would attract such a person to work for our company? What rewards and conditions would allow him to sustain his social and domestic standing? How much does he need in order to free himself from financial pressures, thus allowing him to concentrate all his energies on achieving sales success?

Sadly, the process of calculating the basis of remuneration is usually carried out the wrong way round: What kind of salesperson can we get for the sort of money we are prepared to pay?

While this should take into account the inevitable "learning curve" of the new recruit, it should not discriminate between the capabilities of established salespeople.

The best way to lose your top salesman is to keep saddling him with a bigger and bigger sales target just because he keeps "getting his numbers" while those at the other end of the performance scale get an easy ride just because they have never been guilty of outstanding money in only a minority of salesmen.

Incentive to achieve must surely be the primary purpose of performance-related income. This cannot be brought about by expecting different salespeople in different territories to bring in the same results.

Many companies set a sales target which is the same for all sales areas, often arrived at by dividing the national sales target by the number of people in the sales team. What a nonsense! Sales targets must be set in accordance with the capability of the individual salesman and the potential of the territory.

One particularly common situation is best described by way of example: Salesman 'A' has a Central London territory which not only contains many prospective clients but also several established large-scale users. Salesman 'B' has been with the company for less than a year and is responsible for West Yorkshire, which is not only suffering considerably from the effects of economic recession but prior to his arrival on territory had been without a salesman for over six months.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disap-

pointment at 88% which gives him £17,000. The fact is the man in the South has been creaming off those big prospects that required the least effort, whereas the man in the North has been working his butt off to re-establish the credibility of the company and its products and close the few deals that were available in less than the anticipated selling cycle.

Such a circumstance is a travesty, the very opposite of what performance-related income is about.

Every salesman is entitled to the occasional "bluebird", but each territory must be given its individual objectives according to its potential and the salesman rewarded relative to his achievement of such goals.

While this should take into account the inevitable "learning curve" of the new recruit, it should not discriminate between the capabilities of established salespeople.

The best way to lose your top salesman is to keep saddling him with a bigger and bigger sales target just because he keeps "getting his numbers" while those at the other end of the performance scale get an easy ride just because they have never been guilty of outstanding money in only a minority of salesmen.

Incentive to achieve must surely be the primary purpose of performance-related income. This cannot be brought about by expecting different salespeople in different territories to bring in the same results.

Many companies set a sales target which is the same for all sales areas, often arrived at by dividing the national sales target by the number of people in the sales team. What a nonsense! Sales targets must be set in accordance with the capability of the individual salesman and the potential of the territory.

One particularly common situation is best described by way of example: Salesman 'A' has a Central London territory which not only contains many prospective clients but also several established large-scale users. Salesman 'B' has been with the company for less than a year and is responsible for West Yorkshire, which is not only suffering considerably from the effects of economic recession but prior to his arrival on territory had been without a salesman for over six months.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disap-

pointment at 88% which gives him £17,000. The fact is the man in the South has been creaming off those big prospects that required the least effort, whereas the man in the North has been working his butt off to re-establish the credibility of the company and its products and close the few deals that were available in less than the anticipated selling cycle.

Such a circumstance is a travesty, the very opposite of what performance-related income is about.

Every salesman is entitled to the occasional "bluebird", but each territory must be given its individual objectives according to its potential and the salesman rewarded relative to his achievement of such goals.

While this should take into account the inevitable "learning curve" of the new recruit, it should not discriminate between the capabilities of established salespeople.

The best way to lose your top salesman is to keep saddling him with a bigger and bigger sales target just because he keeps "getting his numbers" while those at the other end of the performance scale get an easy ride just because they have never been guilty of outstanding money in only a minority of salesmen.

Incentive to achieve must surely be the primary purpose of performance-related income. This cannot be brought about by expecting different salespeople in different territories to bring in the same results.

Many companies set a sales target which is the same for all sales areas, often arrived at by dividing the national sales target by the number of people in the sales team. What a nonsense! Sales targets must be set in accordance with the capability of the individual salesman and the potential of the territory.

One particularly common situation is best described by way of example: Salesman 'A' has a Central London territory which not only contains many prospective clients but also several established large-scale users. Salesman 'B' has been with the company for less than a year and is responsible for West Yorkshire, which is not only suffering considerably from the effects of economic recession but prior to his arrival on territory had been without a salesman for over six months.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disap-